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ABSTRACT

This volume contains research works completed in the areas of health, physical education, recreation, and allied areas during 1970. The publication is divided into three parts: I--Index; II--Bibliography; and III--Theses Abstracts. The Index offers an alphabetical cross-reference by subject for the works found in parts II and III. The Bibliography contains 976 research articles from 148 of the 212 periodicals reviewed by the Committee for Completed Research. Theses Abstracts were master's and doctor's theses from 59 institutions which offered graduate programs in health, physical education, recreation, and allied areas. Most references in this section are accompanied by abstracts and all are in alphabetical order according to institution. Major professors and names of institutional representatives who sent in the material are indicated for each article. Lists of the periodicals reviewed and reporting institutions are included. Names and addresses of the 11 member Committee on Completed Research are also presented. (Related document is SP006368). (BRB)

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# COMPLETED RESEARCH
## in Health, Physical Education, and Recreation
including international sources

Volume 13 1971 Edition

covering research completed in 1970

Edited by **ROBERT N. SINGER** and **RAYMOND A. WEISS**
for the RESEARCH COUNCIL of the AMERICAN ASSOCIATION
FOR HEALTH, PHYSICAL EDUCATION, AND RECREATION

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DEDICATED to the International Council on Health, Physical Education, and Recreation by its United States member, the American Association for Health, Physical Education, and Recreation, to share this compilation with other member organizations of ICHPER and thus to extend knowledge in these fields. This annual volume is published in keeping with ICHPER's objective of exchanging research among professional workers throughout the world and furthering advancement in health education, physical education, and recreation.

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# INTRODUCTION

This compilation lists research completed in the areas of health, physical education, recreation, and allied areas during 1970. It is arranged in three parts:

> I. Index. In this section, cross references are given for all the listings in Parts II and III. References are arranged under the subject headings, which are in alphabetical order. Instructions for using the index are given at the top of page 1.
>
> II. Bibliography. This is a listing of published research, citing articles published in 148 of the 212 periodicals reviewed by the Committee for Completed Research. The periodicals reviewed are listed on pages 238 through 240.
>
> III. Theses Abstracts. These are master's and doctor's theses from 59 institutions offering graduate programs in health, physical education, recreation, and allied areas. Institutions reporting are listed on pages 241 and 242. Most references are accompanied by abstracts of the research and all are numbered in alphabetical order according to the institution. Names of institutional representatives sending in these abstracts are indicated in parentheses after the name of the institution; major professors are in parentheses after each reference.

Universities and colleges are encouraged to submit abstracts of theses completed at their institutions in the year 1971 for inclusion in the next issue of Completed Research. Material should be sent to Robert N. Singer, chairman for Theses Abstracts.

Robert N. Singer
Raymond A. Weiss

Co-chairmen
Committee on Completed Research

# PART I—INDEX

This index enables the reader to refer to the items of completed research listed in Parts II and III. Research topics are arranged in alphabetical order. The reference numbers following each topic correspond to the listings of completed research dealing with that topic. The capital letter B indicates a reference to be found in the Bibliography (Part II); the capital letter T indicates a reference to be found in the Theses Abstracts (Part III).

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# PART III—THESES ABSTRACTS

## Appalachian State University, Boone, North Carolina (E. T. Turner)

1. SPEAS, Donna S. *A comparative study on the effectiveness of mental practice and physical practice in teaching bowling to college women.* M.A. in Physical Education, 1970. 46 p. (E. T. Turner)

College women (N=56) selected from 2 1-hr. activity classes met 19 times. Identical teaching methods were applied to both groups, except that from the 7th to the 16th class meetings Group A used mental practice as well as a regular physical practice routine. Group B used physical practice only. Both groups improved significantly (P<.05) but Group B improved significantly more than Group A. In teaching bowling to a class of college women with varying amounts of experience, the instructor is advised to use physical practice in preference to mental practice in the teaching of the basic skills.

## University of Arkansas, Fayetteville, Arkansas (G. C. Moore)

2. AINSWORTH, Jerry L. *The effect of isometric-resistive exercises with the Exer-Genie on strength and speed in swimming.* Ed. D. in Physical Education, 1970. 92 p. (G. C. Moore)

Male and female Ss (N=20 each) ages 7 to 17 were divided into experimental and control groups, equated on the basis of age, sex, and swimming ability. Separate analyses were made for age groups 8-10, 11-12, 13-14, and 15-18. Ss participated in a 6-week program of regular daily swim workouts. The experimental group performed 2 additional exercises daily with the Exer-Genie. Pre- and post-tests were administered for speed in swimming, speed in kicking, strength of arm flexion, and strength of knee extension. ANOVA was used to compare the various groups. No significant differences were found between the 2 groups.

3. BRYANT, Thomas W. *The relationship of physical fitness and other selected factors to academic over- and under-achievement in junior high school boys.* Ed.D. in Physical Education, 1970. 122 p. (E. T. Hendricks)

Academic achievement levels were determined for 155 JHS boys using the Henmon-Nelson Test of Mental Ability as a measure of ability, and grade point average in basic subjects as achievement. Each boy was categorized as overachieving, underachieving, or average. Dependent variables included AAHPER Fitness Test, Ponderal Index, reading comprehension, days absent from school, average study time, average television time, and social status. Using a correlation regression program, the conclusions were: academic overachievement is related to 3 items of the fitness test (600-yd. run, 50-yd. dash, and total score) and social status (Warner Revised Scale). Days absent and average study time also appeared to be somewhat related.

4 CHAMBLESS, Jimmy R. The effects of an isometric weight-training program on the quarter-mile performance of junior high school boys. Ed.D. in Physical Education, 1970. 106 p. (G. C. Moore)
Two training programs (interval running and interval running plus progressive maximal isotonic weight training) were compared over a 7-week period on the 400-yd. run time and cardiovascular condition. Ss were 32 first year JHS track athletes. The Ohio State University Step Test was used as the measure of cardiovascular condition. Reliabilities for both tests ranged from .89 to .97. One-way ANOVA and a t ratio indicated that both training programs significantly improved run performance and cardiovascular condition. There was no significant difference between programs.

5. CLARK, Bob C. The health knowledge of college seniors majoring in health, physical education, and recreation in state supported universities and colleges in Arkansas. Ed.D. in Physical Education, 1970. 75 p. (E. P. Trice)
Scores on the Dearborn College Health Knowledge Test were obtained on 186 senior majors in HPER. Results indicated the mean score (60.6) was significantly lower than the Dearborn test norms (70.6). Means of seven of the 8 participating institutions were significantly below the norms, as were mean scores, of boys and girls. Girls had a significantly higher mean score than boys. Relationships between health knowledge and selected personal variables were also explored.

6. PILCH, Judith Ann. The relationship between reading ability and selected motor skills in seventh grade girls. M.Ed. in Physical Education, 1970. 29 p. (G. C. Moore)
Seventh grade girls (N=59) were divided into 3 groups on the basis of the Reading Comprehension Subtest of the Metropolitan Achievement Test: below average (N=10), average (N=29), and above average (N=20). Means of the 3 groups on the following tests were compared by use of t ratio: (1) Fleishman's Figure-8 Duck, to measure ability to alter body position while moving forward rapidly; (2) Board Balance Test, to measure ability to maintain balance while standing on a moveable support; (3) Johnson Throw and Catch Test, as a measure of eye-hand coordination. Test-retest reliabilities ranged from .515 to .724. No significant differences were found except that the below-average group was better on balance than the average group.

7. POWER, Freddie Fisher. A survey of the programs concerning gymnastics and tumbling in colleges and universities in the United States with enrollments of a thousand or more. M.Ed. in Physical Education, 1970. 66 p. (G. C. Moore)
Questionnaires were sent to the 948 colleges and universities in the U.S. with enrollments over 1000. Usable replies were received from 500 institutions (52%). Information compiled included the following: (1) 330 schools (67%) offered a course in gymnastics. Of these, 285 offered a course for both majors and nonmajors. (2) 290 schools (58%) offered a course in tumbling, with 249 offering a course for both majors and nonmajors. (3) Professional qualifications of instructors were based generally on a course in gymnastics at the college level. (4) Few schools had organized gymnastic or tumbling clubs or competitive teams.

8. PRESCOTT, Evelyn D. The effect of knowledge of mechanical principles on learning speedball and volleyball skills. Ed.D in Physical Education, 1970. 125 p. (G. C. Moore)

College women (N=62) were divided into 2 groups equated on the Humiston Motor Ability Test scores. The control group participated in 9 weeks of speedball instruction, followed by 9 weeks of volleyball instruction. The experimental group received the basic instructional program with knowledge of relevant mechanical principles. Total instructional time was the same for both groups. The Buchanan Speedball Test was administered 3 times (3rd, 6th, and 9th week), as was the Wisconsin Volleyball Test (10th, 14th, and 18th week). Reliability was determined by test-retest and ranged from .64 to .98. Six 1-way ANOVAs were computed. Only 1 item (lift to others in speedball) showed a significant difference (in favor of the experimental group).

9. RIDGWAY, Arthur A. The development of an intramural sports score card and its application in the evaluation of the intramural sports programs for men in Kansas colleges and universities. Ed.D. in Physical Education, 1970. 150 p. (G. C. Moore)

A score card was developed to evaluate college intramural sports programs for men. Validity was supported by a review of the literature and a jury of qualified persons. Reliability was determined by a consistency check involving 8 colleges. Resulting indices were low on 2 standards (finances, facilities and equipment; and publicity and recognition). For the other 6 areas the index ranged from 62.5% to 100%, with a mean index for the entire score card of 86.9%. Intramural sports programs of all 20 4-year colleges in Kansas were evaluated. No significant differences were found between the programs of the several types of schools; however, scores were generally higher for public than for private, for larger than for smaller, and for universities than for colleges. Highest area of attainment was Rules and Regulations. Weaknesses were shown in areas of programs activities; facilities; co-recreational activities; and health protection.

10. ROSS, Delwin T. Selected training procedures for the development of arm extensor strength and swimming speed of the sprint crawl stroke. Ed.D. in Physical Education, 1970. 100 p. (E. T. Hendricks)

Four training procedures (swimming, weight training, swimming against progressively increasing resistance, and dry-land Exer-Genie exercise) were compared over a 6-week period for the development of arm extensor strength and speed on sprint crawl stroke. Ss were 72 students from intermediate and advanced college swimming classes. ANOVA and a *t* ratio were computed. All training procedures produced significant improvements in both arm strength and swimming speed. Swimming only was significantly poorer than the other 3 methods for both speed and strength. Weight training and Exer-Genie methods were more effective in developing arm strength. Resistive swimming, weight training, and Exer-Genie methods did not differ significantly in increasing swimming speed.

**Ball State University, Muncie, Indiana** (R. Kersgaard)

11. GREGOR, Robert J. A comparison of the energy expenditure during positive and negative grade running. M.A. in Physical Education, 1970. 60 p. (D. Costill)

Ten highly conditioned runners were tested on 3 separate treadmill runs utilizing grades of +6%, 0% and -6%. All runs were 7 min. in duration at 200 m/min. Energy requirements increased 40% (+6% grade) and decreased 27% (-6% grade) when compared to horizontal running. The resultant positive-negative work ratio was 1.92-1.

**Brigham Young University, Provo, Utah** (D. D. Shaw)

12. ALDER, Craig E. A comparison of beginning and experienced wrestlers using the double leg takedown through cinematographical analysis. M.S. in Physical Education, 1970. 76 p. (B. Jarman)

A suggested method of executing the double leg takedown was developed, which was validated as correct in practice and principle by 4 prominent Utah coaches. A photographic analysis of 30 beginning and 3 varsity wrestlers was made. Two films of the wrestlers were analyzed on the basis of their performance against 11 points of the double leg takedown. The films were then compared with each other. Data revealed that no wrestler adhered strictly to the suggested method, but those who adhered most closely made the fewest mistakes in the execution of the move.

13. ANDERSON, Dellis M. Comparative evaluation of the physical education programs for boys in the Calgary high schools and the Calgary parochial schools. M.S. in Physical Education, 1970. 94 p. (B. L. Bangerter)

Department heads of PE in each of the 11 public and 3 parochial SHSs which participated in the study, using LaPorte's score card No. II, scored their respective programs. Nine of the schools received a "poor" rating on the score card. Three of the other 5 schools were rated "very poor"; 1 as possessing a "fair" program; and 1 school received a "good" rating. Very little comparative difference existed between the school districts. Mean scores for each of the 10 areas of the score card for each school district were almost equal, while the total mean score for each public and parochial school district was identical. Weak areas in all the scored programs were: swimming pool, outdoor areas, medical examinations, and correctives program.

14. BECKER, Charles J. An evaluation of physical education programs for men in Oregon colleges. Ed.D. in Physical Education, 1970. 164 p. (B. L. Bangerter)

The extent to which various factors conformed to the standards as they appear in the Neilson-Comer-Allsen Score Card was determined. Letters were sent to 12 community college presidents, and a 1-day visitation was made at each of 8 colleges which agreed to participate. Professional assistance was rated excellent; instructional staff was rated good, with preparation in PE sciences and activities rated poor; facilities were rated below average; program organization, program activities, and teacher education program were rated poor; and the college-wide program recieved a rating of below average.

15. BERG, Kathryn. A comparative study of learning for beginning swimming skills. M.S. in Physical Education, 1970. 66 p. (B. L. Bangerter)
College women (N=20) registered in 2 beginning swimming classes were tested for 20 class periods. Each group was given a pretest, a period of instruction, and then a posttest. Tests included a subjective rating by judges on stroke form; a distance and speed swim 100 yd. maximum; and a 10 min. maximum swim of endurance. Data were subjected to ANOVA on stroke form. ANOCOVA was used in the distance and speed swim and the endurance swim. The groups were similar in swimming skills tested except in the elementary back stroke, where greater learning was observed in the daily class.

16. BIEGEL, Kenneth L. The effect of beginning progressive weight training classes at Brigham Young University on strength and cardiorespiratory endurance. M.S. in Physical Education, 1970. 61 p. (P. E. Allsen)
A control group (N=40) did not participate in PE classes. An experimental group (N=29) participated in beginning weight training during the fall semester of the 1969-70 school year. Weight training classes did not contribute toward the development of strength or cardiorespiratory endurance. Differences in individual instruction might have been a significant factor contributing to the development of strength and endurance.

17. BIRD, Rebecca M. The nomenclature of job titles of municipal recreation and parks personnel in the United States. M.A. in Recreation Education, 1970. 90 p. (C. Jensen)
Based on the review of literature, a list of 29 job positions, along with a description of each, was put into a questionnaire. The questionnaire was divided into 4 parts, each part concerned with a certain phase of municipal recreation. It was sent to 125 municipal recreation authorities who were selected from the 8 geographic districts of the National Recreation and Park Association. Quite often the respondents favored their own "pet" job titles, or titles similar to those existing in their own program, and there was a tendency to prefer the more traditional job titles. The preferred title for each of the 29 positions was determined.

18. BOWMAN, Bill C. A study to identify and measure biographical, physiological and psychological factors which predict success in high school wrestling. Ed.D. in Physical Education, 1970. 127 p. (E. S. Roundy)
Idaho HS wrestlers (N=136) were tested. Data from the factor test and the season's won-lost record were analyzed by multiple $\underline{r}$ and regression. All 29 independent variables, the biographical variables, and the physiological variables were significantly ($P < .05$) important to wrestling success; 7 factors--age, years of wrestling experience, hand grip strength, upper body strength, cardiovascular endurance, desire to achieve, and desire to experiment--were significant to wrestling success; and a regression equation to be used in predicting wrestling success was formulated.

19. BRAITHWAITE, Keith D. An evaluation of facilities and physical education programs in southwestern Alberta junior high schools. M.S. in Physical Education, 1970. 125 p. (E. S. Roundy)

The southwestern area of Alberta, Canada was divided into 3 geographical regions. The Neilson scorecard was distributed and completed by each of the 9 participating JHSs. There was a significant relationship ($\underline{r}=.60$) between facilities and other programs; a significant difference in ratings of the PE program according to the various geographical regions was not established; units of strength were found to be instructional staff (78%), and professional assistance (77%), while weaknesses were evident in facilities (47%), and program activities (48%).

20. BRAY, Kenneth J. G. An evaluation of the school health services in the Provo city school district, Provo, Utah. M.S. in Health Sciences, 1970. 130 p. (L. Overstreet)

The Watters Scorecard for Appraising the School Health Services was used for the evaluation. Of the 3,000 points used to weight the score card questions, the schools of the district averaged 2,156 points. Expressed with a rating of 72%, the program was beginning to approach the ideal. Major recommendations made to the school district were to formulate complete written policies for the program; improve on the present record-keeping system; assign a health coordinator to each school; develop an in-service program to keep school personnel informed; and hire 2 additional school nurses.

21. CAPPADONIA, Philip J. Evaluation of vandalism during leisure time in all junior high schools of Utah County, Utah. M.A. in Recreation Education, 1970. 63 p. (C. T. Thorstenson)

A checklist was used to collect the data. Major findings were: during the regular school year schools were used less than 20 hrs. per week for leisure time activities; and less at other times of the year; vandalism occurred most often during the spring season of the regular school year on Friday and Saturday evenings between 7:00 P.M. and 10:00 P.M., and was committed most often by JHS students; and educational methods were used by half the schools to reduce vandalism. Opinions indicated that the major cause of vandalism was unsupervised children with nothing to do.

22. CONLEE, Robert K. The contribution of badminton toward the development of strength and endurance. M.S. in Physical Education, 1970. 53 p. (P. E. Allsen)

A control group (N=40) did not participate in PE classes while an experimental group (N=31) participated in beginning badminton. Badminton did not contribute toward the development of strength or endurance.

23. CRITCHLEY, Geraldine. A study of the methods and the criteria used in giving marks for girls' physical education in high schools in ten Western states. M.A. in Physical Education, 1970. 63 p. (L. Holbrook)

The survey of methods used for reporting pupil progress in 100 SHSs in 10 Western states showed that a majority of the schools used the letters A, B, C, D, F, with a trend away from the Satisfactory-Unsatisfactory mark. In the criteria for determining marks, there were 5 categories: Attitude, Knowledge, Attendance, Improvement, and General Ability, each subdivided into specific elements. Effort in Participation and Being Dressed for Participation were emphasized most in the categories of Attitude and Attendance, respectively. Although Fundamental Skills was first under Knowledge, Improvement of Skills was rated below Improvement of Attitude. Data showed variation in the emphasis placed on specific elements in each category.

24. DUPAIX, Roger O. An electromyographic study to determine the effect of a progressive resistance exercise program on the strength of action potentials in selected muscles. M.S. in Physical Education, 1970. 44 p. (C. B. Call)

Electromyograms and gross strength measurements were obtained as each S performed 2 movements. Experimental and control group Ss (N =13) were measured at the beginning and end of a 5-week period. There was no significant difference in the strength of the action potentials. Within each group the mean strength of the action potentials decreased as the mean gross strength of the muscles increased, but the differences were too small to be significant. A relationship was observed but there was no significant decrease in the strength of the action potentials.

25. FISHER, Orville P. The contribution of handball toward the development of strength and endurance. M.S. in Physical Education, 1970. 47 p. (P. E. Allsen)

The McCloy Strength Test for strength and the Treadmill Test of Physical Fitness for Hard Muscle Work for endurance were administered to a control group and an experimental group. ANCOVA was used to analyze body weight, back strength, dips, endurance, right grip strength, left grip strength, and chins. Right grip strength, left grip strength, and chins were significant at the .05 level. ANOVAs, used to analyze leg strength, arm strength, and total strength, also yielded significant Fs.

26. FOSS, Maralee. The Exer-grid and certain selected anthropometric measurements of high school freshman girls. M.S. in Physical Education, 1970. 103 p. (L. Holbrook)

HS freshman girls (N =115) from Coer d'Alene SHS were Ss in a testing program concerned with the effects of 6 weeks of exercise on certain body dimensions. Experimental groups participated in an exercise program on the Exer-grid, and control groups in a regular PE program. Pre- and post-tests of 13 measurements were taken. ANOVAs showed a significant difference in effect between the experimental groups and control groups, and the 3-day- and 2-day-a-week classes. The Exer-grid exercise program did significantly affect the circumference measurements of the left upper arm, the right and left thighs, and the left calf. Also, significant rs resulted for all circumference measurements, with the exception of the right and left upper arms.

27. FRAME, Michael M. The Exer-Genie as a standardized tool for the rapid and efficient determination of physical fitness. M.S. in Health Sciences, 1970. 56 p. (D. Shaw)

Ss (N =177) were randomly selected from 4 educational levels: elementary, SHS, college, and postcollege. Each S was tested with the Exer-Genie and the AAHPER 600-yd. run-walk tests. Running times and 3 pulse counts were combined to provide data. Analysis showed a relatively low r between the 2 tests and t tests indicated a significant difference ($P < .001$) between the

Exer-Genie and the AAHPER 600-yd. run-walk test. The Exer-Genie did not appear to be an effective fitness testing tool.

28. GIBB, Sara Lee. An evaluation of the effectiveness of selected literature as a motivational and instructional guide to fitness. M.S. in Physical Education, 1970. 55 p. (L. Holbrook)
Ss (N =100) had voluntarily purchased the selected book, Slim, Trim, Fun for Life, offered by the Book of the Month Club in August, 1968. They were chosen randomly from the files of a book club. The women Ss, who represented a wide cross-section of the U.S., responded to a questionnaire. Information was obtained about the usefulness and effectiveness of the total book, as well as valuable data about the lay public which seeks aid from books. Those parts which were most beneficial to the user, and those less beneficial were revealed. Perhaps the most significant fact was that 78% of the Ss had experienced a behavioral change as a result of the influence of this book.

29. GRAY, Howard R. A comparative study of intramural, scholastic, and related activities of men and women at Brigham Young University. M.A. in Recreation Education, 1970. 70 p. (B. deHoyos)
A questionaire, constructed to gather data for leisure time activities, was administered randomly to male and female (N= 600) student participants. Data indicated that single students used the intramural activities more than married students. Male and female Ss preferred team to individual activities, while male Ss participated significantly more than female Ss, and juniors and seniors participated significantly more than freshmen and sophomores. Only 20% of the Ss learned about the intramural activities through intramural advertising.

30. GREEN, William B. The effectiveness of television replay as a technique in teaching beginning swimming skills. Ed.D. in Physical Education, 1970. 138 p. (B. L. Bangerter)
Ss (N =56), registered for 3 classes in beginning swimming, had a different instructor and assistant and met 3 days/week for 16 weeks. Ss, classified as beginners and advanced beginners, were randomly assigned to a traditional or TV replay treatment group in each class. Three judges rated Ss in American National Red Cross swimming test items to determine achievement. A pretest and 7 subsequent tests were used. ANOCOVA revealed significance ($P < .05$) between the 2 teaching methods in favor of TV replay; advanced beginners made more gains in achievement than beginners; the extent to which video replay was effective depended upon the teacher using it and the ability group he used; and both methods of instruction led to significant improvement.

31. IPSON, Nila Mae. Weight loss among overweight women physical education majors. M.S. in Physical Education, 1970. 56 p. (G. Fisher)
The ideal weight for each S was derived from standardized height-weight tables and thoracic bi-iliac width measurements. The % of body weight was determined by skin fold thickness measurements at 3 sites. Control (N= 30) and experimental (N= 25) Ss were measured at the beginning and end of a 10-week period. Restriction from student teaching had no significant effect on weight loss among overweight PE majors. Class standing and body frame structure were also not related to weight loss.

32. KALUHIOKALANI, Norman A. C. Factors considered by high school principals in the State of Utah in relation to hiring practices and specific assignments of physical educators and coaches. M.S. in Physical Education, 1970. 66 p. (B. O. Jarman)

A questionnaire was constructed and sent to 80 SHS principals. It was found that the majority of coaches were PE majors. There was a considerable gap between the hiring practices of principals with coaching experience and those without. There were no standard procedures. The 3 most important course work areas necessary in preparing athletic coaches as indicated by principals were fundamentals of various sports, care and prevention of injuries, and theory and techniques of coaching. Classroom teaching ability was one of the main factors considered. In the smaller schools, coaches were expected to teach subjects other than PE as part of their work.

33. KARREN, Keith J. A comparison study of health needs and interests of Brigham Young University freshmen. M.S. in Health Sciences, 1970. 103 p. (S. W. Heiner)

A "health needs" instrument and a "health interests" instrument were administered to 6 sections of HE 130. Computer analysis provided an item analysis, mean ratings, and an r of health needs and interests in major subject areas. Data indicated specific health needs in the areas of dental health, eye care, nutrition and diet, communicable diseases, community and international health, and chronic and degenerative diseases. Major health interests included marriage and the family, stimulants and depressants, and chronic and degenerative diseases. The total r coefficient between health needs and interests was -.63.

34. KLEVEN, D. K. Ankle joint--an anatomical and mechanical study using amputated limbs. M.S. in Physical Education, 1970. 61 p. (C. B. Call)

The anatomical and mechanical aspects of the ankle (talocrural) joint were studied in eight fresh below-knee amputated specimens. Specimens were prepared and attached to a supporting frame in such a way as to enable forces to be applied to the triceps surae tendon and resistance to be given to the forefoot against flexion. The ease with which plantar flexion was accomplished over the greater part of the range is highly indicative that the triceps surae tendon is the major contributor to this motion. The addition of weight to the forefoot biased the system and increased inertia at the beginning of joint range. Once inertia was overcome, minimal additional force produced the majority of available range. Data may be interpreted to show that the ankle joint is not a simple hinge joint but a polycentric joint.

35. LEWIS, Glen, Jr. The use of television replay for skill achievement with intermediate skiers. M.S. in Physical Education, 1970. 43 p. (B. L. Bangerter)

Intermediate skiers (N = 40) from the regular ski instruction program were divided into 4 classes with 4 different instructors and apprentices, and met twice a week for 6 weeks. Half of each class was randomly assigned to a TV replay or traditional treatment group. TV replay was used for 30 min. once each week for 4 weeks. Two judges rated each S on a pretest and a posttest while he was performing the same 3 maneuvers for each testing.

ANOCOVA revealed significant *F*s for instructors, treatments, raters, or interactions. Both methods of instruction produced signifcant learning.

36. LILLY, Rex A. *A study to determine the most effective method of shooting basketball short shots: Banking versus straight in.* M.S. in Physical Education, 1970. 29 p. (B. L. Bangerter)
2,400 attempts were made, with each type of shot involving 24 SHS basket ball team members as shooters. Shots were taken from 5 stations located on a 5 ft. radius from the center of the goal. ANOVA indicated banking was significantly the superior method of shooting short shots; 20° and 55° angle bank shots were successful a higher % of the time than the 90° angle shot. When directly shot at the basket, the angle made little difference.

37. LUNDGREN, Linda D. *Selected authentic folk costumes and suggested adaptations.* M.A. in Recreation Education, 1970. 135 p. (B. F. deHoyos)
Data were collected through questionnaires, related literature, interview, and correspondence with authorities on costume, and personal environmental research. Authentic costumes for the selected countries were presented through photographs, illustrations, and annotated descriptions. It was concluded that the costume may be authentic but yet vary considerably because of the individual's interpretation of the design. Folk costumes are gradually disappearing, since most peasants now wear city dress.

38. MARCHANT, William S. *Telemetered cardiac response to participation in selected dual sports activities.* M.S. in Physical Education, 1970. 87 p. (C. B. Call)
The mean working heart rate served as the criterion measurement of activity severity. Findings were based on the heart rate records obtained from male adults (N = 10), competently skilled, as they competed against the same opponent. A significant *r* was found between recovery heart rate and mean working heart rate. The opponent's mean working heart rate was positively related to the S's performance and negatively to the opponent's performance. Performance for Ss was negatively related to the performance of the opponent. Several significant differences were evident, with ANOVA tests for the mean working heart rate and performance (score) data on both Ss and the opponent. Insignificant variance was manifest in the major test between sports.

39. McCLENAGHAN, Karma. *Recreational skills of youth drug abusers.* M.A. in Recreation Education, 1970. 102 p. (B. F. deHoyos)
It was concluded that the relationship between recreation and drug abuse exists only in the field of sports where participation in sports decreases as frequency of drug abuse increases. There is an actual increase of participation in social activities as drug abuse increases. This could be due to the type of social activity engaged in, as many drug abusers list activities centered around music as their favorite recreational activity. Also, there is a definite positive relationship between lack of consistency of rule enforcement by the parent and increase of drug abuse.

40. McCONKIE, Mary E. Suggested behavioral objectives for the teachers of drug abuse in Utah's junior high schools. M.S. in Health Sciences, 1970. 96 p. (A. L. Thygerson)

A questionnaire was developed and administered to 2 groups of judges. Analysis indicated that 71 of the objectives were recommended for the course after receiving at least the minimal rating possible from both groups of authorities. Agreement of opinion between the 3 groups was noted through a t-test analysis, except on 17 objectives. The findings are recommended as a guide in determining the behavioral objectives for a unit on drug abuse education for the JHS.

41. MILNER, Robert K. The difference between Converse canvas and Adidas leather basketball shoes as shown by various performance tests. M.S. in Physical Education, 1970. 35 p. (E. Roundy)

Performance was assessed in the following events: an agility test, a speed test, and a vertical jump test. An equal number of trials was run in each type of shoe with male Ss (N = 30). There was no significant difference in the performances in the agility and speed tests while wearing either type of shoe. There was a significant difference in the vertical jump test in favor of the Adidas shoes.

42. MOSES, Janalee. A recommended program and facilities for family camps in the State of Utah. M.A. in Recreation Education, 1970. 127 p. (W. J. Hafen)

The procedure involved 5 steps: locating all family camps that were accredited by the ACA by writing to the ACA; constructing a questionnaire; contacting the family camp directors to inform them of the study and ask for their cooperation; compiling the returned data, and constructing a checklist based on the programs and facilities most frequently used, and returning this to the directors for evaluation; and, on the basis of the returned data, suggesting a recommended program and program facilities for family camps in the State of Utah. From the original 93 accredited family camps, only 15 were the desired family camp. The most common activities were: campfires, camp singing, dancing, special dinners, teen parties, movies, social games, outdoor sports, quiet games, and hay rides. The most used facilities were: baseball, horseshoes, volleyball, a campfire area, ping pong areas, a recreation center, and the tiny tots play area.

43. NELSON, Richard C. An evaluation of school health services in Nebo School District in Utah County, Utah. M.S. in Health Sciences, 1970. 137 p. (D. Shaw)

The study revealed that Nebo School District was lacking in 5 of the 7 areas of school health services. The area rating lowest was organization and administration, while services for handicapped students rated highest. It was concluded that the organization and administration phase of school health services greatly needed improvement. There was no one assigned to coordinate the total health program in most of the schools. Planned written policies were insufficient, and there were no school health advisory councils in any of the schools. Physical facilities for school health services were, for the most part, inadequate, and there were no medical or dental advisors appointed in the district. The emergency care program could be improved by more adequate written policies, and more first aid kits placed in recommended areas. Also, health counseling and follow-up were not being employed sufficiently.

44. NIKOLIC, Sima. The history of intercollegiate tennis at Brigham Young University. M.Ed. in Physical Education, 1970. 110 p. (E. S. Roundy)
With few exceptions, the records of all tennis matches played by the Brigham Young University teams from 1912 to 1969 were reported. During these years the Cougar tennis team competed for the state, Skyline, and Western Athletic Conference titles. A short biography of each of the coaches was presented. Outstanding players were also identified and brief mention was made of their most noteworthy achievements.

45. RASMUSSEN, Barton Gill. Implications of recent cases in physical education from 1960 to 1970. M.S. in Physical Education, 1970. 71 p. (M. F. Hartvigsen)
By using the historical method of research, it was indicated that the physical educator can be found negligent in a variety of areas, and that of the cases brought before the courts approximately 50% were decided in favor of the plaintiff. The negligence of the physical educators which led to the cases studied was caused by the conduct of the instructors falling below the standard of care established by law for the protection of others against unreasonable risk of harm. Through wise and careful preparation, physical educators may minimize and possibly eliminate the occurrence of suits for negligence.

46. REEVE, Steve M. A comparison of treadmill and vertical jump endurance tests as measures of physical fitness. M.S. in Physical Education, 1970. 37 p. (C. B. Call)
Two vertical jump tests were given, each of which lasted for 4 min. Also 1 2-min. vertical jump test and a maximum $O_2$ up-take test were administered. Ss (N = 26), were randomly chosen from 2 college service classes. No relationship existed between vertical jump endurance tests and L/min. of oxygen up-take, no relationship existed between the 2 min. vertical jump endurance test and maximum oxygen up-take (ml/kg/min); and a significant relationship was obtained between the 2 4-min. vertical jump endurance tests and ml/kg/min of oxygen up-take, but the relationship was too small to be of any use in predicting physical fitness.

47. ROGERS, Pamela. A collection of characteristics depicting the ideal community swimming pool. M.A. in Recreation Education, 1970. 161 p. (W. J. Hafen)
The procedure involved 6 steps: researching current pertinent literature; researching health laws in the State of Utah to determine the basic requirements in pool design and construction; interviewing professionals in the field; constructing a questionnaire to be submitted to aquatics professionals for their recommendations; researching options available to enhance the basic requirements; and analyzing and presenting the data in an original and organized format. It was concluded that the advice of a consultant should be sought; pool plans must adhere to state health law requirements; all aquatics personnel should be on the planning committee; and pools should be planned to meet the needs of each individual community's aquatics program.

48. SIMONS, Dale E. An evaluation of competitive junior football in Utah. Ed.D. in Physical Education, 1970. 225 p. (E. S. Roundy)

Data were obtained from the following populations: doctors--emotional, anatomical, and physiological effects of participation; psychologists--emotional and personality changes that result from participation; educators--educational soundness of the program and need fulfillment of the participant; parents--the effects of participation on the home and family relationships; coaches--professional preparation of coaches and general evaluation of the program; participants--interest in the program and benefits incurred through participation. Ten people were interviewed in each of these groups to obtain basic information relative to the junior tackle football program in order to construct a questionnaire. This form was mailed to 100 doctors, 100 psychologists, 100 educators, 100 parents, and 100 junior football players in the State of Utah. Recommendations were made regarding a starting age for the junior football program, screening of coaches to insure leadership, and limiting of practice sessions in both time and number.

49. STARTIN, Ronald S. A comparative study of the relative efficiency for place-kicking purposes of the three different types of toe surfaces on football shoes. M.S. in Physical Education, 1970. 31 p. (E. S. Roundy)

Three Ss with college football experience in place kicking were tested by having each S kick 5 times in succession with each toe surface on each of 3 days. Conditions were equitable for each S's performance with each type of shoe. The kicks were marked on a grid and scored from 1 - 10 according to distance and accuracy. The difference in performance with the round toe and square surface, and the round toe and cupped surface was significant. The difference in performance with the square and cupped toe surface was insignificant.

50. TILLS, James D. Behavioral objectives for teaching about mood and behavior altering substances in the elementary school. M.S. in Health Sciences, 1970. 96 p. (D. D. Shaw)

Three questionnaires were sent to students and teachers of the Nebo School District. Results obtained were subjected to statistical measures which yielded data justifying development of each specific behavioral objective. It was found that drug terminology was weak, teachers consistently underestimated the drug knowledge of their students, and students received knowledge of the effects of drugs outside of the formal educational structure. It was recommended that the formulation of a vertical structure of behavioral objectives be implemented in the Nebo School District.

51. WOOD, M. Blaine. Changes in strength and endurance incurred by high school players during a season of competitive basketball. M.S. in Physical Education, 1970. 50 p. (E. S. Roundy)

Varsity SHS basketball players (N = 18) were administered the McCloy Strength Test and Harvard Step Test. These tests were administered once prior to the season of play, at mid-season, and at the end of the basketball season. Significant gains in endurance were made by the varsity group, and there were no significant gains in strength by the junior varsity group.

52. YOUNG, Michael M. Methods to popularize wrestling. M.A. in Physical Education, 1970. 60 p. (P. E. Allsen)
A questionnaire was constructed and sent to the selected schools It was found that SHSs received better newspaper coverage than colleges; neither SHSs nor colleges received extensive coverage from radio or television; the best method of publicity for both SHSs and colleges was the community newspaper; both SHSs and colleges indicated they received adequate support from their administration and faculty; SHSs and colleges indicated a need for wrestling meets to be held in conjunction with basketball games; SHSs and colleges indicated that giving more emphasis to the pin was the rule change that would help most to promote wrestling.

53. ZIMMERMAN, Ronald A. The effects of basketball on strength and endurance. M.S. in Physical Education, 1970. 45 p. (P. E. Allsen)
A control group (N = 40) did not participate in PE classes and an experimental group (N = 26) participated in a beginning college basketball class. Basketball did not contribute toward the development of strength or endurance.

## Brooklyn College, Brooklyn, New York (N. Doscher)

54. FITZ GERALD, Catherine Carney. Consumer's reaction upon learning of additives (poisons) taken in his food. M.S. in Health and Physical Education, 1971. 129 p. (N. Doscher)
A questionnaire was developed; part 1 tested the selection of foods in supermarkets; part 2 tested knowledge of additives; and part 3 tested selection of the same foods in part 1 after the consumer was informed of studies of additives on experimental animals. SHS students (N = 100) and 45 male and female SHS and college teachers and engineers were compared. There were noticeable variations in knowledge, habits, and motivations among the groups. All groups were more selective of foods after being informed. However, loopholes in the law still pose formidable obstacles to preventive consumer health. Courses in consumer protection are one answer to the problem.

55. JACOBS, Edith L. The need for adaptive physical education in the New York City senior high schools: An investigation. M.S. in Physical Education, 1969. 88 p. (N. Doscher)
Medically excused SHS girls (N =75) participated in the survey and 55 academic and vocational SHSs took part in the study, which was restricted to girls. From the literature, a structured interview guide was developed to elicit opinions with regard to PE and an adaptive PE program. Data were obtained by the personal interview and the questionnaire technique. Respondents were a group of medically excused students; a group of physical educators who were considered experts in the overall field of PE and a group of school and private physicians. Physical educators and school and private physicians agreed in most instances with regard to beliefs concerning the need for adaptive PE programs for the atypical child.

56. SCALISE, Joseph Anthony. The effect of athletic training on the threshold and tolerance levels of ischemic muscle pain. M.S. in Health and Physical Education, 1970. 54 p. (N. Doscher)
SHS athletes and nonathletes (18 pairs) were matched for height, weight, age, and grade, and were tested for grip strength with a dynamometer. Threshold of pain was measured by first sensation of pain in reaction to the tightening of sphygmomanometer pressure cuff on the dominant upper arm. The ability to tolerate ischemic pain was higher in athletes than in the nonathletes; and levels of ischemic muscle pain were not affected by grip strength nor by mere number of years of athletic training.

57. SCHWARTZ, Esther Phyllis. Information on contraception in the secondary school curriculum as a means toward birth control. M.S. in Health and Physical Education, 1970. 58 p. (N. Doscher)
Validated questionnaires were used. Major authorities throughout the U.S. were questioned on techniques of contraception, along with other items in sex education. Both authorities and a large group of educators were questioned about the inclusion of various forms of contraceptive techniques and other factors in sex education in the SHS curriculum. Many syllabi and plans of study of SHSs were examined to note whether the topic of contraception was included in the curriculum. Contraception was mentioned in only a few of the plans of study and curricula. Many of the respondents expressed a positive approach toward the inclusion of contraception as a topic in the sex education course, though they varied greatly as to what techniques should be discussed and what visual aids should be used in instruction. Both nationwide authorities and teachers expressed positive approaches toward an inclusion of a wide number of items dealing directly with the topics of sex and sexuality.

58. SMOLLER, Barbaraellen. The qualities of a summer resident camp for elementary and secondary school children. M.S. in Physical Education, 1969. 57 p.
Summer camping for children is an unlicensed business in New York. In an attempt to determine the validity of practices in 100 randomly selected camps in the state, the following procedure was used. First, a list of objectives for camping was approved by a jury of camping experts. Second, more than 100 questions on camp procedures growing out of these objectives were compiled on the basis of a questionnaire sent to a second jury of camping experts. These questions, 110 in number, were sent to camp owners. The score achieved in terms of fulfilling objectives of camping through camp practices in these camps ranged widely and indicated that there was no uniformity. Since the degree of achievement of camp objectives could be measured by the extent of the practices employed by the camps, the 110 questions served as an instrument to make value judgments concerning the benefits accruing to children who attended these camps.

### University of California, Los Angeles, California - (J. F. Keogh)

59. GERSHON, Joel Stanford. Verbal encouragement and complex gross motor performance in boys. M.S. in Physical Education, 1969. (B. J. Cratty)

60. HAMNQUIST, Susan Saaf. Ability grouping and selected elements in volleyball performance. M.S. in Physical Education, 1970. (D. T. Handy)

61. HARRIS, Robert Carroll. An analysis of selected motivational techniques on physical performance. M.S. in Physical Education, 1970. 46 p. (W. W. Massey)

62. HOUGHTON, Roberta Lynn. Aquatic art in society. M.S. in Physical Education, 1969. (B. W. Miller)

63. MATHESON, Torsten Andreas. Relationship of physiological factors to football performance. M.S. in Physical Education, 1970. (B. W. Miller)

64. MATZ, Louise Davis. Sports, games, and physical education of ancient and modern Indians. M.S. in Physical Education, 1970. 73 p. (B. W. Miller)

65. SCHULTZ, Victor. A comparison of selected measures of activation and impulse control in hyperactive and normal children. M.S. in Physical Education, 1970. (B. J. Cratty)

66. STEVENS, James Lloyd. The effects of strenuous and exhaustive exercise on maze learning. M.S. in Physical Education, 1970. 79 p. (B. J. Cratty)

67. ZENO, Lawrence E. Strength maintenance programs for football players. M.S. in Physical Education, 1970. (W. W. Massey)

**University of California, Berkeley, California** (D. B. Van Dalen)

68. GIRANDOLA, Robert Nello. Changes in efficiency during submaximal work as a result of training. Ed.D. in Physical Education, June 1970. 68 p. (J. H. Wilmore)

69. KATCH, Frank Irwin. Optimal duration of a heavy work endurance test in relation to oxygen intake capacity. Ed.D. in Physical Education-Education, June 1970. 54 p. (F. M. Henry)

70. KNECHT, Harry George. Relationship between kinesthetic abilities and gross motor task performance with increasing practice with sixth and seventh grade boys. Ed.D. in Physical Education-Education, June 1970. 126 p. (M. L. Norrie)

71. SVOBODA, Milan David. Cumulated steady-state fatigue and recovery. Ed.D. in Physical Education-Education, June 1970. 52 p. (F. M. Henry)

72. Todor, John Ivan. The interrelationship of kinesthetically monitored distance and force reproduction tasks. M.A. in Physical Education, June 1970. 57 p. (M. L. Norrie)

73. WILLIAMS, Leslie Robert Tumoana. Refractoriness of a movement to directional change. Ph.D. in Education, December 1970. 46 p. (F. M. Henry)

### University of California, Santa Barbara, California (V. Skubic)

74. BARNI, David A. The effects of cold showers on performance. M.A. in Physical Education, 1970. 55 p. (E. Michael)

Male Ss (N =10) training in endurance running were tested on a treadmill to obtain their maximal oxygen uptake. Ss repeated 2 60% and 2 90% maximal effort runs, both with and without a 5-min. shower applied during a 10 min. recovery period between runs. Heart rates, ventilation, and $VO_2$ measurements were made throughout the exercise and recovery periods. With a 60% maximal run, the cold shower resulted in a significantly lower heart rate following the shower and also during the first and second min. of recovery following the second run. The cold shower had no significant effect on any of the other measurements. Total cost of the exercise and oxygen debt measurements were not affected by the cold showers.

75. ECKARDT, Garnet L. Physiological parameters related to work effort selection by trained and untrained subjects. M.A. in Physical Education, 1970. 42 p. (E. Michael)

Six male volunteer students, aged 20 to 30, performed 4 tests. Each test consisted of a 2.5 mph walk for 5 min. on the treadmill to establish a baseline; 15 min. of running at S's own selected speed, and a 13-min. recovery period of walking at 2.5 mph. S exercised at a 0% slope in 2 tests and at a 10% grade in 2 tests. When the heart rates were 170 beats/min. and the RQ 1.0, Ss felt they were performing heavy work running on the level. Ss had similar measurements and selected work loads of similar cost when exercising on a 10% slope. Training appeared to increase work tolerance; however, heart rate, oxygen debt, and energy expenditures were not related to physical conditioning or experience as long as the same activity was performed, i.e., running.

76. EVERT, Judith E. Physiological changes in the exercise response of high school track girls during seven weeks posttraining. M.A. in Physical Education, 1970. 41 p. (E. Michael)

Eleven girls, aged 14 to 18, who were all in good physical condition as a result of participation in track and field competition, were tested during a 7-week period. Two tests were given during the first, third, fifth, and seventh weeks of posttraining: a 3-min. step test, and a 30-min. progressive work-load treadmill test. Definite posttraining trends, not significant, were shown during the 7 weeks. Ventilation and heart rate relationships to exercise oxygen consumption increased, thus showing a trend of increased energy cost in order to maintain the oxygen consumption level. However, ventilation, oxygen consumption, and heart rate, when examined individually, showed no change during the posttraining period.

77. McCAFFERTY, William B. Comparison between standing and walking recovery from treadmill exercise. M.A. in Physical Education, 1970. 71 p. (E. Michael)

Male and female Ss (N = 40) were tested twice, once with a standing recovery and once with a walking recovery, following a treadmill run of 5 mph for 10 min. Recovery oxygen uptake measurements from moderate to heavy exercise differed with different recovery types only in the alactic payoff portion of recovery; and the lactic payoff is similar regardless of the type of recovery. Heart rate recovery was mainly influenced by the type and intensity of the exercise.

78. MEEK, Frances L. Relationship of motor performance and field independence of girls as measured by the rod and frame test. M.A. in Physical Education, 1970. 59 p. (V. Skubic)
Cattell's High School Personality Questionnaire and Witkin's Rod and Frame Test were administered to 60 SHS girls to determine whether highly skilled girls are more reliant on self-awareness for their sense of the upright than are poorly skilled girls, and whether the personality trait of independence is related to field independence as found in the Rod and Frame Test. Highly skilled girls and poorly skilled girls were given the Rod and Frame Test. On each of 9 trials, both the rod and the frame were varied. The highly skilled girls were significantly more accurate in perceiving the vertical than were poorly skilled Ss; they were more field independent, since they relied on their kinesthetic sense in making judgments of the upright position, whereas the poorly skilled girls relied more heavily on environmental supports. The 2 groups did not differ on the Cattell Personality Questionnaire. The personality trait of independence appeared to be different from the rod and frame factor of field independence.

79. OEHLMAN, Robert W. Reaction time as a function of the positioning of movement complexity within a discrete task. M.A. in Physical Education, 1970. 39 p. (G. E. Stelmach)
Examined were the effects of early and late placement of movement complexity on the RT within a discrete response. The effect of the location of complexity within a response was tested by examining the RT of 60 right-handed male Ss between the ages of 18 and 25 years. Two groups of 30 Ss performed both the simple-complex (S-C) and complex-simple (C-S) phases within a discrete arm movement. Each phase was counterbalanced across the 2 groups; thus all Ss received equal testing on each sequence of presentation. The mean RT for those trials in which the complex phase occurred early was 219 msec., while mean RT for the movement in which complexity occurred late was 203 msec., a 7.8% difference. The increased response latency for a complex movement was attributed to the increased amount of time needed to process and coordinate the movement program into the proper neuromuscular centers directing the desired movement.

80. WILSON, Mark H. Information-processing, movement extent, and directional response tendency in short-term motor memory. M.A. in Physical Education, 1970. 71 p. (G. Stelmach)
Two short-term motor retention experiments were conducted in an attempt to differentiate between the effect of an interpolated motor movement which required information-processing and one that did not. Ss were required to displace a lever from a starting position until striking a stop-peg which defined the target. S would then return to the starting position and the retention interval began. There were 2 retention interval lengths (12 and 42 sec.), and 3 retention interval conditions, which included: a resting condition; an interpolated motor activity which required no information-reduction; and an interpolated motor activity which did necessitate infor-

mation-reduction. Ss were then asked to estimate the location of the original target location and the 3 retention interval treatments were repeated. Retention intervals were found to be a nonsignificant source of error. Interpolated movements did not have a significant effect on retention compared to control. Information-reduction activity was a source of error when analyzed algebraically, and it was apparent that the larger positive error of the short targets was responsible for the difference. Accuracy of recall for the various movement lengths followed a trend of positive error for short responses and increasing negative error as target distance lengthened.

## California State College at Long Beach, Long Beach, California

(D. L. Fornia)

81. CURTIS, Richard L. A comparison of the running speed and leg power developed during a football season by two types of specific Exer-Genie programs. M.A. in Physical Education, 1969. 51 p. (D. L. Fornia)

SHS freshman football players were divided into 3 groups: Group I participated in a progressive resistance Exer-Genie program to strengthen lower extremities, Group II used a progressive resistance longline harness Exer-Genie program, and Group III, the control group, competed in the regular football program but was exempt from any weight training activities. Analysis through t tests indicated that speed and explosive power changes in Ss utilizing either a progressive resistance Exer-Genie program or a progressive resistance longline harness Exer-Genie program did not differ significantly, and Ss who participated in an Exer-Genie weight training program exhibited significant improvement in speed and power over the nonweight training players.

82. DURDEN, Earnel. A comparative study of rhythmic and non-rhythmic cadence counts in football. M.A. in Physical Education, 1969. 34 p. (F. Miller.)

83. MACHDANZ, Richard W. Body-awareness: Athletes and non-athletes. M.A. in Physical Education, 1969. 127 p. (L. Stock)

College male athletes (N = 53) and nonathletes (N = 49) were tested for gross body awareness, body boundary awareness, and prominence in recall of body-oriented words versus nonbody-oriented words. Gross body awareness procedure required Ss to write 20 things they were aware of at a particular moment. Responses referring to body themes were termed gross body awareness scores. Body boundary awareness procedure measured sensations in skin, stomach, muscle, and heart. Body boundary awareness scores referring to the sum of skin and muscle sensations minus stomach and heart sensations were obtained. Recall procedure involved recall selectivity of 10 body words and 10 nonbody words projected on a screen. Body prominence recall scores were derived by subtracting the sum of the nonbody words from the sum of body words. Athletes were significantly higher in the production of body related themes in the immediate perceptual fields than nonathletes; athletes were significantly more selective in awareness of sensations in muscle and skin areas versus stomach and heart regions than nonathletes; and athletes recalled significantly more body words versus nonbody words than nonathletes.

84. MELVIN, Eugene L. The effect of an Exer-Genie resistance exercise program on the jumping performance of eight grade boys. M.A. in Physical Education, 1969. 58 p. (D. L. Fornia.)

85. MIGUEL, Suzanne. The carry-over value of physical education activities of high school graduates ten years after graduation. M.A. in Physical Education, 1969. 122 p. (L. Stock)
To recommend curricular content for SHS PE based on leisure time patterns and recommendations of graduates, a checklist type of questionnaire was distributed to a selected sample of 1957 alumni of 3 SHSs in Long Beach, California. Returns from 94 women and 64 men were received, making a composite total of 55%. Analysis of data indicated that the majority of men participated in daily physical recreational activities, but that the majority of women did not. Not all PE activities offered had carry-over value, and graduates indicated current participation in activities not offered in their PE program.

86. NANCE, Michele G. A comparative study of the physical performance abilities of American-Negro, Anglo-American, and Mexican-American junior high school females. M.A. in Physical Education, 1970. 68 p. (D. L. Fornia)
SHS girls (N = 286) were classified into 3 groups on the basis of skin color, physical features, and surnames. Six physical skills were measured by the California Physical Performance Test. Findings were that American-Negro group's scores were statistically superior to the Anglo-American and Mexican-American scores on the standing broad jump, 50-yard dash, and softball throw for distance; American-Negroes' scores were statistically superior to those of the Mexican-Americans on the sit-up test; and no statistically significant differences were found between mean scores of Anglo-Americans and Mexican-Americans.

87. SEBOLD, Douglas D. The status of athletic training in Southern California high schools. M.A. in Physical Education, 1969. 75 p. (W. Boring)

88. STOSKOPF, Linda L. A survey of teacher evaluation methods and qualities used as criteria for personnel selection in Orange County public high schools. M.A. in Physical Education. 136 p. 1969. (D. L. Fornia)
To ascertain qualities important in selection of physical educators, the extent of agreement among administrators and physical educators concerning qualities related to selection, and to establish criteria for personnel selection, a 35-item questionnaire was distributed to 129 administrators and 63 PE department chairmen representing all of the unified and SHS districts in Orange County, California. The data showed that: (1) 7% of the administrators were women, (2) administrative background and a master's degree were important preparations for personnel recruiters, (3) the majority of responding physical educators had responsibilities in personnel selection, (4) versatility of candidates could be determined better by selection committee than single interviewer, (5) although not the most important appraisal method, the nonstructured interview could best determine philosophies of applicants, (6) personality tests were not valid means of appraisal, (7) administrators believed that verbal communication was more important than appearance, (8) candidates' attitudes were of prime importance,

(9) experience was more important than additional educational enrichment, (10) master teachers' recommendations were more important than those of college advisors, and (11) verbal communication between administrators was more important than written recommendation.

89. WALLACE, Barry C. A study of characteristics deemed important in the selection of a quarterback. M.A. in Physical Education, 1969. 75 p. (J. Montgomery)

90. WILCOXON, Betty Jane. The effects of near versus far distance practice sessions on the achievement of archers. M.A. in Physical Education, 1969. 67 p. (D. L. Fornia)

Ss enrolled in 4 college archery classes were divided into 4 groups: 15 inexperienced male archers practicing predominantly from the 50 yd. line; 21 experienced female archers practicing predominantly from the 50 yd. line; 19 inexperienced male archers practicing predominantly from the 30 yd. line; and 22 experienced female archers practicing predominantly from the 30 yd. line. Classes met twice per week for 1 semester, and each archer was tested on 2 Columbia Rounds. On the final 30-yd. score, the group of female archers who practiced from that distance scored significantly higher than those who practiced from the 50-yd. line. At mid-term the female archers who practiced from the 50-yd. line scored significantly lower than the other groups at the 30-yd. line. In 8 of the categories in which significant differences of mean scores were indicated, the inexperienced male archers were equal to or superior to the experienced female archers.

91. WITT, George A. The relationship between primary mental abilities and physical performance under emotional stress. M.A. in Physical Education, 1970. 31 p. (C. Klafs)

To determine the stress reaction of 73 SHS students, nonstress basketball foul shooting averages were correlated with stress foul shooting averages. The statistical means of the stress and the nonstress tests were computed for comparison with the factors of age, foul shooting ability, Verbal Meaning, Number Facility, Spatial Relations, and the composite Primary Mental Ability level. Positive relationships between mental ability and stress performance were found.

92. YOUNGREN, Delvana H. A relationship of selected anthropometric measurements to performances of the United States women gymnastic athletes in the 1968 Olympic trials. M.A. in Physical Education, 1969. 48 p. (D. L. Fornia)

Ss (N = 15) were tested and received final ratings by the Olympic Technical Committee in Long Beach, California. Variables measured were height, weight, ponderal index, and skinfold sites of the triceps, abdomen, and thigh. High correlations were found between free exercise and balance beam; uneven parallel bars and vaulting; all-around placement with uneven parallel bars, balance beam, and vaulting; skinfold measurements of the triceps and thigh to total skinfold; triceps and total skinfold sites to uneven parallel bars; and height and weight. Moderate correlations were found between the triceps, thigh, and total skinfolds; free exercise placement and all-around placement; triceps and total skinfold sites to vaulting; uneven parallel bars and vaulting to thigh skinfold; parallel bars to balance beam. Low correlations were found between weight and all variables except height and ponderal index. Ponderal index had low and low negative correlation with all variables. Abdominal skinfold site correlated negatively with all variables except ponderal index. A multiple correlation of .681 was found with the variables of rank, height, weight, the cube root of weight, ponderal index, triceps, abdomen, thigh, and total skinfold sites.

**Central Missouri State College, Warrensburg, Missouri** (M. E. Lyon)

93. ANDERSON, Jennifer Marleen. A slow pitch coaching manual for beginner to advanced players. M.S. in Physical Education, 1970. 105 p. (M. J. Barnes)

A manual was developed including strategy, player positioning, skills, techniques and drills on a progressive basis for the various levels of competition.

94. BOYCE, Marian L. A study of the relationship between motor ability and reading ability at the second and thirteenth grade levels. M.S. in Physical Education, 1970. 92 p. (B. J. Bailey)

The Brace Motor Ability Test was administered to 123 second grade students and 90 college freshmen. The Gates-McGinitie Primary B Reading Test was used for the second graders and the Nelson-Denny Reading Test was used for the college Ss. A significant r ($P < .05$) of .26 was obtained between reading and motor ability at the second grade level. The r of -.18 at the college level was not significant ($P > .05$).

95. MATHIS, Sharon K. Effects of a two-week Hatha-Yoga program upon ability to learn a motor skill. M.S. in Physical Education, 1970. 59 p. (J. J. Jutten)

Freshmen college women received instruction in Hatha-Yoga for 35 min. a day, 5 days a week for 2 weeks. At the conclusion of the yoga instruction the experimental group and a control group ($N = 30$) were given instructions on how to juggle. After 15 5-min. practice sessions there was no significant difference ($P > .01$) in performance between the groups.

**Chadron State College, Chadron, Nebraska** (T. P. Colgate)

96. CULLEN, Jerold S. The effects of weight training on body weight and muscle hypertrophy. M.S. in Education, 1970. 48 p. (T. P. Colgate)

Three training programs were used in an attempt to determine the most efficient manner of producing muscle hypertrophy in selected muscle groups of college aged men. Findings indicated that there was no significant ($P > .05$) difference between 3 sets of 8 repetitions, 2 sets of 12 repetitions and 4 sets of 6 repetitions in producing muscle hypertrophy.

97. PETSCH, Verl Earl, Jr. Comparison of selected instructional techniques involved in learning a simple skill of kinesthetic balance. M.S. in Education, 1970. 47 p. (T. P. Colgate)

Male college students ($N = 161$) were divided randomly into 6 groups. Each group was subjected to 1 of the following teaching techniques: reading-mental practice; demonstration-practice; reading-practice; reading, demonstration-practice; trial-error; control. The skill was to stand on a Ball-Rolla Board supported only by the roller. Each group met for 10 min. a session, twice a week for 4 weeks. Analysis of data indicated that demonstration-practice, reading-practice, reading-demonstration-practice, and trial-error all improve kinesthetic learning. Reading-mental practice is not an aid to improving kinesthetic learning. Demonstration-practice improves kinesthetic learning statistically more than does reading-mental practice, reading-practice, and reading-demonstration-practice. Trial and error improves kinesthetic learning statistically more than reading-mental practice.

98. RAINBOLT, Wanda. A study of the attitudes toward physical education of a selected group of college age women. M.S. in Education, 1970. 44 p. (T. P. Colgate)

The Wear attitude inventory was used to measure and compare the change in attitudes of women swimmers who were classified into ability groups. Findings indicated that all women swimmers inproved at least 1 or more skill levels, but when classified by their initial skill level, there was no significant (P > .05) difference in attitude change between the groups.

**Chico State College, Chico, California** (W. T. Simmons)

99. FERRER, Alfred J. The effects of specific stretching exercises on outfield throwing proficiency among selected high school baseball players. M.A. in Physical Education, 1970. 53 p. (A. Moore)

The purposes were to evaluate the throwing proficiencies of SHS varsity baseball players in experimental and control groups using a prescribed test, and to determine the extent to which a 3-month period of prescribed activity may affect rate of improvement. Two varsity baseball teams were tested for throwing strength and accuracy before the season started. The control group was put through a normal training program, while the experimental group did specific stretching exercises for the training period. The experimental group showed superior improvement in both outfield throwing accuracy and outfield throwing strength. Strength significantly improved.

100. KAMMAN, Barbara M. An inventory of sex attitudes among selected college students. M.A. in Physical Education, 1970. 71 p. (S. A. Smith)

The purposes were to determine the attitudes exhibited by selected college students, to identify specific attitudes towards selected areas of sexual behavior, and to compare selected response attitudes of men and women. A 50-statement sex attitude questionnaire was constructed on the basis of 11 sex topics. Unmarried college freshmen, 310 males and 431 females, between the ages of 17 and 20 were surveyed. Data revealed the Ss' desire and need for sex education. They indicated as part of sex education some emphasis on sexual morals be taught. Ss appeared to lack information about contraceptives, conception, and venereal disease. The findings showed little difference between the sexes in their attitudes towards sexual behavior. Subjects agreed that birth control methods be made available to all who wish to use them. Tolerance and acceptance of homosexuality was demonstrated.

101. PERKINS, Robert C. An analysis of the physical education facilities, equipment, curricula, and administrative practices in selected Roman Catholic and public elementary schools. M.A. in Physical Education, 1971. 99 p. (R. K. Cutler)

The purposes were to analyze by means of a questionnaire the facilities, equipment, curricula, and administrative practices of PE programs in selected Roman Catholic and public ele. schools of Northern California, and to compare the PE programs of the participating Roman Catholic elementary schools to the PE programs of the participating public elementary schools. Schools were purposively selected according to the number of students and the grade levels. Aspects of the Roman Catholic schools' PE programs were inferior to those in the public schools. Public schools had significantly more outdoor and indoor PE facilities and more PE equipment. The public schools also scored significantly higher ($P < .01$) in PE curricula and administrative practices.

## **Teachers College, Columbia University, New York, New York** (J. R. Higgins)

102. GIBSON, Jed Glayde. A study of effective and ineffective behaviors of college supervisors of student teachers in physical education. Ed.D. in Physical Education, 1969. 134 p. (W. G. Anderson)

The critical incident technique was selected as the research tool for conducting the study. A total of 4,328 effective and ineffective report forms were distributed to college supervisors and student teachers. Student teachers contributed 641 usable incidents, and college supervisors returned 243 usable incidents. Abstracted critical behaviors totaled 1,018 and were categorized into 47 subcategories of ineffective behaviors, 35 subcategories of effective behaviors, 13 categories of effective and ineffective behaviors, and 3 major areas of behavior. Analysis of the critical behaviors resulted in the development of 8 guides for college supervisors suggesting what effective types of behavior are most successful in assisting student teachers to improve their teaching. Maximum effectiveness of the college supervisor in improving the competencies of student teachers appears to be limited because of failure of the college supervisor to establish a good rapport with the student teacher, and in several instances with the cooperating teacher; infrequent observation of the student teacher; short duration of most observations; and lack of effective and continuous appraisal of the student teacher's ability or competence.

103. DEL REY, Patricia D. The effects of videotaped feedback and environmental certainty on form, accuracy, and latency during skill acquisition. Ed.D. in Motor Learning and Performance, 1970. 107 p. (A. M. Gentile)

College women ($N = 40$) were used to investigate the effects of videotaped feedback (VT) as a form of terminal, augmented, knowledge of performance on form, accuracy, and latency during skill acquisition. A second purpose was to examine the relationships between form, accuracy, and latency. The skill selected was a modification of the classical fencing lunge against 2 laterally-arranged targets, performed under closed (certain) and open (uncertain) environmental conditions. The VT occurred twice each day for

3 days. Playback consisted of a block of 6 trials. A 2X2X3 factorial arrangement was employed with repeated measures on the last factor, testing periods. Form (rating scale), accuracy (points on target) and latency were taken to measure the effects of VT. An ANOVA was used to evaluate the observed differences. Correlations were computed between the 3 dependent variables during the 3 testing periods. In terms of form and latency, the main effects of VT, environmental certainty, and testing periods were significant ($P < .05$). In terms of accuracy, only the main effects of environmental certainty were significant. There was no significant $\underline{r}$ ($P < .05$) between the externally-imposed form and accuracy of outcome.

104. ROTHSTEIN, Anne L. Timing behavior in children. Ed.D. in Motor Learning, 1970. 116 p. (A. M. Gentile)

Number of correct interresponse intervals (IRI) and standard deviation for each of 5 blocks of 40 responses were derived for 48 boys of 5, 7, 9, and 11 years of age. The correct IRI was preset at 2.75-3.24 sec. Ss were randomly assigned to specific, directional, or magnitudinal feedback conditions. The number of correct IRI increased as age increased; increased with practice; and increased under specific and directional feedback more than under magnitudinal feedback. Standard deviation decreased with practice, but interaction between age and feedback conditions was observed. The 9-year-olds were significantly more variable under magnitudinal feedback. The task, which was a modified DRL-3 schedule, appeared to be more of a problem solving situation under the magnitudinal feedback condition. The observed results may be a reflection of problem solving ability rather than simple motor timing.

105. FLYNN, Richard B. The effect of varied intensities of physical exertion and levels of aerobic capacity on the performance of a numerical task. Ed.D. in Physical Education, 1970. 99 p. (B. Gutin)

Male subjects ($N = 30$), ages 9 to 11, were separated into 3 aerobic capacity (AC) groups according to performance on a submaximal bicycle ergometer test. S then took a 3-min. test of combined addition and subtraction on 5 separate days, preceded each day by 1 of 5 varied intensities of exertion. Scores were recorded for speed and accuracy for each min. and for the total 3 min. Heart rates (HR), numerical speed data, and numerical accuracy data were analyzed in separate 3-way analyses of variance. HR increased linearly with increasing levels of work, and the highest AC group had significantly lower HR than the low AC group at the highest workload. Numerical speed was significantly lower during min. 3 than during min. 1. Prior physical exertion and aerobic capacity were not significantly related to numerical accuracy or speed.

106. FRANKE, Johannah Schwarz. Career patterns of 1961-65 graduates of performing dance curricula in selected colleges and universities. Ed.D. in Physical Education, 1970. 200 p. (R. Kraus)

Information on the effectiveness of college performing dance curricula for graduates of these programs in terms of their professional preparation, their vocational aspirations at various times, and their activities since graduating from college was obtained from a lengthy questionnaire to 91 graduates (87 women and 4 men) during the period 1961-65, from 13 institutions. Typical respondents had 5 or more years of dance training before college and more than 10 hours of dance technique in their junior and senior years in college. After college they typically taught dance full or part-time for some period and changed jobs several times. Less than 1/2 the respondents engaged in any professional dance performing, and virtually none were self-supporting through dance performing alone, except for limited periods. Departments offering a major in dance performance should provide realistic information on dance as a career to prospective majors, offer extensive opportunities for dance performance and choreography in their programs, and encourage students to obtain formal credentials in dance teaching or other areas for earning money after graduation.

**Eastern Illinois University, Charleston, Illinois** (W. S. Lowell)

107. CAPITAO, Antone B. A cinematographic analysis of the Hecht dismount on the horizontal bar. M.S. in Physical Education, 1970. 307 p. (R. W. Hussey.)

Nine trials of 5 Ss were recorded on film at 126.5 frames per sec. A panel of judges rated each S as to excellence of performance on each trial. Analysis showed a common pattern of movement with each S. Slight deviations occurred in head movement, and in the timing used in carrying out the sequence of movements. Better performers had a greater elapsed time in the air.

108. DOAN, Thomas L. A history of interscholastic football games of Schlarman High School, Danville, Illinois. M.S. in Physical Education, 1970. 98 p. (W. S. Lowell)

The highlights and statistical history of football at the above school were examined from the initial season of competition, 1946, to 1969.

109. EVANS, Frank A. The history of basketball in the Interstate Intercollegiate Athletic Conference, 1950-1970. M.S. in Education, 1970. 56 p. (R. A. Carey)

The highlights and statistical history of basketball in the above-mentioned conference were compiled and examined for the 20 years the conference was in existence.

**University of Florida, Gainesville, Florida** (C. A. Boyd)

110. PARKER, Keith H. The effect of time of administration on performance of muscular strength and cardiovascular fitness tests. M.A. in Physical Education and Health, 1970. 54 p. (C. W. Zauner)

Two groups (N = 30) were tested for cardiovascular efficiency, using the Tuttle Pulse-Ratio test, and muscular strength, using a grip dynamometer test at 8:30 a.m., 12 noon, and 3:30 p.m. Results showed a statistically significant difference in performances of the grip test at the various times. Cardiovascular efficiency was not influenced in a significant manner by the time of administration of the test, although an observed difference indicated achievement of most efficient performances at 12 noon. Group I

Ss, with an age span of 12 to 14 years, recorded higher cardiovascular efficiency scores than did the 18 to 25-year-old Group II Ss. Group II scores exceeded those of Group I on grip strength. Both groups achieved results indicating that the influence of time of day varies with the age of S.

**Florida State University, Tallahassee, Florida** (P. W. Everett)

111. ABBOTT, Revonda Anne. The comparative myology of the hands of the human and the rhesus monkey. M.S. in Physical Education, 1970. 69 p. (O. M. Berringer)

Eight hands were surgically removed from 2 human cadavers and 3 rhesus monkeys. After an exploratory dissection on 1 hand of each species, the remaining hands were dissected in a superficial to deep approach. Findings were recorded by means of black and white photography, accompanied by a written description of the existing structures. These data were comparatively examined and similarities and differences were determined and presented in the form of a descriptive analysis. The human and the rhesus hand presented many similarities, which tend to support the use of the rhesus as a laboratory specimen for courses in human anatomy. Major differences observed were the absence of the tendons of the extensor digiti tertii profundus and the extensor digiti quarti profundus muscles in the human, and the absence of the tendons of the pollicis longus and the extensor pollicis brevis muscles in the rhesus.

112. BALDWIN, Michael B. A comparison of the effects of stainless steel and wooden racquets on achievement levels of beginning tennis players. M.S. in Physical Education, 1970. 43 p. (P. W. Everett)

Three instructors and 40 beginning players, who were randomly assigned to either the experimental or control group, conducted a comparison of the effects of stainless steel and wooden tennis racquets on the achievement levels of beginning tennis players. Ss were pretested on the Revised Dyer Backboard Tennis Test and a form evaluation. They then received 4 weeks of tennis instruction, including the forehand, backhand, volley, and strategical and conceptual areas of tennis. Following the posttest, which used the Revised Dyer test and a game-form evaluation, the data were treated with ANCOVA and ANOVA techniques. Results failed to reject the hypothesis that there would be no significant difference between those Ss using stainless steel tennis racquets and those using wooden tennis racquets. Results indicated several different areas for further consideration, such as testing players of advanced playing ability, players of different age groups, racquets of different materials, different tennis strokes, and a longer training program.

113. BASS, Beverly S. The effect of progressive overload training on the development of sculling in synchronized swimming. M.S. in Physical Education, 1970. 57 p. (L. J. Wells)

The Ss (N = 15), women students enrolled in a synchronized swimming class or members of the Tarpon Club at Florida State University, were randomly assigned either to a control or an experimental group. Following a pretest both groups were trained with the same workout for 7 weeks, with 3 10-min. workouts a week; however, the experimental group added resistance progressively with the use of lead weights on the ankles and waist.

Data collected and treated were the number of sculls used and the time used over a specified distance for 8 sculling tests (standard reverse, reverse torpedo, torpedo, canoe, standard scull in flamingo position, reverse scull in ballet knee position, and standard scull in ballet leg position); the time a double ballet leg could be held; and the height obtained in a vertical position using the vertical support scull, measuring from the water line on the leg to the center of the ankle. ANOVA indicated significance ($P < .05$) within each group; thus the treatment was not detrimental to the development of sculling ability. However, ANCOVA revealed no apparent statistical significance in the difference between the gains of the 2 groups. Correlations revealed that generally there were strong positive relationships between the number of sculls used and the time elapsed, indicating that the 2 parameters used together may be a valid indication of sculling ability.

114. BEAVERS, Bill D. The effect of concurrent visual feedback on the rate of learning the cross on the still rings. M.S. in Physical Education, 1970. 74 p. (O. M. Berringer)

Thirteen control and 14 experimental male Ss performed both isotonic and isometric contractions during a 7-week training program designed to improve the arm adductor strength necessary to perform the cross. Strength measurement of all Ss was accomplished twice per week by means of a set of household scales placed on an adjustable platform directly beneath a pair of still rings. While standing on the scales, S performed 3 maximal isometric contractions while in the proper cross position. The average of the 3 dial readings was subtracted from S's body weight to determine the total effective body weight that could be supported by the arms. Experimental Ss were permitted to observe the scale dial during each test, while the control Ss received no external feedback. Both groups made slight strength gains as a result of the training program. The experimental group had significantly greater strength scores before, during, and following the training program. However, there were no significant differences between groups in terms of the rate of strength improvement over the 7-week period.

115. COHEN, Patricia H. A compilation of recreational activities which may aid in the reduction of hostility in psychiatric patients. M.S. in Recreation, 1970. 70 p. (F. C. Cannon)

In a review of literature, gross physical movements, ego-enhancement, catharsis, and frustration were apparently important factors in the creation and reduction of hostility. These factors were defined as therapeutic elements. Five judges ranked 20 activities from low to high for each therapeutic element; $r$ coefficients indicated significant agreement among the judges. However, for ego-enhancement, large standard deviations on individual activities and small $r$ coefficients indicated difficulty in identifying activities for that element. Since a significant agreement appeared among judges' rankings, it was concluded that recreational therapists did rank activities with the necessary degree of agreement to select activities for programing in recreational therapy. Studies testing effects of the ranked activities on psychiatric patients were recommended. Also recommended were further ranking studies controlling variables such as the judges' familiarity with an activity, with certain age groups, and with types of recreational programs.

116. FARIS, Arthur W. The effects of physical training upon the collagen and elastin content of the aorta of adult male white rats. Ph.D. in Physical Education, 1970. 49 p. (P. W. Everett)
Ss (N = 24) were randomly assigned to 3 groups of 8 each. One group served as controls and did not participate in an exercise program. A 2d group was run daily for 5 min. at a rate of 42ft./min. The 3d group also ran at a rate of 42 ft./min., but for progressively increasing lengths of time. From a basic rate of 5 min., group 3 ran 10% longer each week than they did the preceding week. The experimental period consisted of 6 weeks of training on a motor-driven treadmill. After the 6-week experimental period, the animals were sacrificed by cervical dislocation and the proximal aorta removed. A standard colorimetric technique was utilized to quantify the 2 proteins of collagen and elastin with the oxidation of hyproxyproline which produced products that formed a chromophore with p-dimethylaminobenazaldehyde. ANOVA revealed no significant differences in the elastin content of the proximal aorta of Ss. Significance ($P < .01$) was found with respect to the collagen content of the mild exercise group vs. the control group, and the mild exercise group vs. the progressive exercise group.

117. JOHNSON, Arthur Charles, Jr. Comparison of measured and predicted maximum oxygen uptake in weight lifters. M.S. in Physical Education. 1970. 39 p. (R. Byrd)
Ten experienced weight lifters at the Florida State University performed maximum exercise bouts in the movement of squatting in order to determine oxygen uptake levels. This value was compared statistically to their predicted maximum oxygen uptake as determined from the Astrand and Ryhming nomogram after a sub-maximal bout on the bicycle ergometer. The Wilcoxon Matched-Pairs Signed-Ranks Test revealed that there was no significance ($P > .05$) between the 2. It was concluded that such squatting bouts had in this particular instance produced maximum oxygen uptake in the weight lifters.

118. KOZLOFF, Edward H. A comparison of the performance scores of a simple cognitive task subsequent to reaching varied induced heart rates. Ph.D. in Physical Education, 1970. 104 p. (P. W. Everett)
Seventh and eighth grade male JHS students (N = 34) performed simple addition in order to determine and compare the effects of cognitive performance subsequent to reaching 6 selected heart rate levels. Stress was provided by pedaling a stationary bicycle. Addition consisted of 3 rows of 3-digit numbers, with test scores based on speed and accuracy of performance. Results were analyzed by ANOVA and the Newman-Keuls multiple range test, with the Ss additionally categorized into a high, medium, and low fitness group. Exertion had a significant positive effect on speed of performance with a heart rate of 180 beats/min. over 120 beats/min. No significant effect was indicated subsequent to reaching any of the other heart rate levels for both speed and accuracy. No significance ($P > .05$) was found in any of the fitness groups in terms of accuracy of performance or in the high and low fitness groups in terms of speed of performance. Four combinations of heart rates revealed $P < .05$ in the average fitness group in terms of speed of performance.

119. LaGRAND, Louis E. A semantic differential analysis of the behavioral characteristics of athletic coaches as reported by athletes. Ph.D. in Physical Education, 1970. 112 p. (K. D. Miller)

Four groups of athletes (N = 76) representing the sports of basketball, soccer, tennis, and wrestling were asked to rate what they considered to be their best coach on 14 selected behavioral characteristics. Significance ($P < .05$) was observed in the profiles of coaches as judged by athletes when comparisons were made between the team sports, the individual sports, and combined team sports vs. combined individual sports. The largest number of differences (77) occurred in the comparison of the profiles of coaches of tennis and wrestling. There were 37 ($P < .05$) in the comparison of soccer coaches and basketball coaches. Eighteen ($P < .05$) were noted when the profiles of coaches of the combined team sports were compared with the profiles of the combined individual sports. A hierarchy of behavioral characteristics of athletic coaches was formed on the basis of the ratings of all Ss (N = 304). Also, hierarchies were established for coaches of each of the 4 sports. On all hierarchies the behavioral characteristic, "knowledge of the sport," received the highest ratings by Ss. "Enthusiasm" also received high ratings. A total of 1,298 written responses was received in an attempt to obtain a more detailed observation from Ss.

120. LAY, Nancy E. The effect of learning to swim on the self-concept of college men and women. Ph.D. in Physical Education, 1970. 75 p. (K. D. Miller)

The Tennessee Self-Concept Scale was administered to a group of non-swimmers enrolled in the basic PE program at the University of Tennessee, prior to and at the conclusion of a beginning swimming course, consisting of 20 lessons. The experimental group was composed of 45 women and 33 men, and a randomly selected control group was composed of 48 women and 41 men. The distribution scores (D) of the counseling form of the Tennessee scale were used to compare pre- and post-self-concept scores of the Ss. Significance ($P < .01$) was found for both men and women who learned to swim as opposed to those who failed to learn. Scores of the successful group for both sexes were higher than scores of those who were unsuccessful. Comparisons of self-concept scores in regard to whether the class was sexually segregated or coeducational were also considered. These findings revealed that men and women reacted differently in terms of class type. However, learning to swim in a single-sex or a coeducational situation was not considered the significant factor in self-concept change.

121. LIPE, LeOra M. An investigation of aspiration and motor performance levels of Negro and white sixth grade students. Ed.D. in Physical Education, 1970. 71 p. (P. W. Everett)

The 4-sec. dash, grip strength test, side-step test, standing broad jump, stork stand, and the basketball field goal speed test were administered to each student, who also recorded his level of aspiration for his next performance of each task. Ss (N = 96) were grouped according to race and sex. There was a significant positive difference between performance and aspiration on all tasks, except in grip strength for the Negro females. In the sidestep and broad jump tasks, the Negro males had a significantly higher positive level of aspiration. The performance means for the white males were significantly higher ($P < .05$) than those for the Negro males in the sidestep and basketball goal shooting tasks. There was evidence of a degree of generality of performance and specificity of aspiration for the Negro males, while the opposite was true for the white males. An element of specificity on both aspiration and performance was indicated for both groups of female Ss.

122. MILLER, David K. A comparison of the effects of individual and team sports programs on the motor ability of male college freshmen. Ph.D. in Physical Education, 1970. 79 p. (P. W. Everett)

One group (N = 32) completed 2 consecutive quarters of team sports; a 2d group (N = 31) completed 2 consecutive quarters of individual sports; a 3d group (N = 15) completed 1 quarter of an individual sport, followed by 1 quarter of a team sport; and a 4th group (N = 18) completed 1 quarter of a team sport followed by an individual sport. The team sports were basketball, soccer, softball, and volleyball, whereas the individual sports were badminton, bowling, and tennis. At the conclusion of the fall quarter Foundations Program, in which all freshmen were enrolled, and at the conclusion of the following 2 quarters, the Barrow Motor Ability Test (zig-zag run, standing broad jump, medicine ball put, 60-yd. dash, softball throw for distance, and wall pass) was administered to the Ss. ANOVA indicated no significance ($P > .05$) was found in the effect of the 4 groups on motor ability or within each of the 4 groups. The t test analysis indicated that the effect of bowling and tennis and the effect of badminton and tennis on the 60-yd. dash, and the effect of soccer and volleyball, as well as the effect of volleyball and basketball, on the wall pass, were significantly different.

123. MORANT, Charles. A comparison of Exer-Genie, isometric, and isotonic training programs on selected components of motor ability. Ph.D. in Physical Education, 1970. 81 p. (P. W. Everett)

Male students (N = 54) served as Ss and were assigned to 3 training groups. Pre- and post-tests were administered in the areas of agility, flexibility, muscular endurance, power, and speed. The Exer-Genie group performed 3 sets of 10 exercises, the isometric group 2 repetitions of the "Commander Set," and the isotonic group 3 sets of 10 weight training exercises 3 days/week for 12 weeks. Analysis indicated that there were significant differences between the Exer-Genie and isometric groups in the area of agility. There was significance ($P < .05$) between the Exer-Genie and isotonic groups and the isometric and isotonic groups in the area of muscular endurance, as measured by the number of floor push-ups executed. Significance ($P < .05$) was also found between the Exer-Genie and isometric groups and the isometric and isotonic groups in the area of muscular endurance, as measured by the number of sit-ups executed. There was significance between the 3 training groups in the areas of flexibility, power, and speed.

124. NOYES, Robert C. The effects of success and failure in physical performance upon state anxiety and bodily concern of college students varying in anxiety proneness. Ph.D. in Physical Education, 1970. 97 p. (P. W. Everett)

The State-Trait Anxiety Inventory (A-Trait) form was used to determine anxiety proneness. The State-Trait Anxiety Inventory (A-State) form was used to determine situational anxiety. Bodily concern was evaluated by utilization of the Homonym Word Association Test. Of 195 white male students, those who scored in the upper and lower 25th percentiles on norms for college undergraduates on the A-Trait measure, were divided into 4 experimental groups. High and low anxious Ss were randomly assigned to either a success or failure condition. The 20 Ss in each of these groups were retested on the A-State measure and the Bodily Concern measure in a private session. Ss then performed 2 physical tasks--the sitting basketball throw for distance and the alternate wall toss. The experimenter deliberately manipulated the performance goals so that the desired success or failure condition existed. After the physical task performances, success and failure Ss were retested on the A-State and Bodily Concern measures. Results, which involved 3-factor ANOVA with repeated measures on the last factor, were high A-Trait Ss responded with high A-State scores; the stress situation which involved competition against bogus norms resulted in A-State increments for the HAF, LAF, and LAS groups; the HAS group did not show A-State increments following successful competition against the bogus norms; and failure Ss had higher Bodily Concern scores than success Ss.

125. SNEAD, Marjorie Ellen. *A comparison of leisure activities among juvenile delinquents on probation, juvenile delinquents on aftercare, and nondelinquent subjects in Pinellas County, Florida.* M.S. in Recreation, 1970. 67 p. (F. C. Cannon)

The sample was male Ss in Pinellas County, Fla., meeting the following qualifications: chronological age 13 through 16, IQ 72-103, and presently attending school. Aftercare Ss (N = 14), probation Ss (N = 15), and nondelinquent Ss (N = 22), kept a diary of their activities for the dates April 29, 1970 and May 2, 1970. Of this number, 7 delinquents on probation and 10 nondelinquents returned the completed diaries for a total sample of 25. The effects of delinquency classification, race, age, and IQ on leisure activities were compared. ANOVA was computed for coparticipants in activities, active participation in leisure activities, non-active participation, spectator activities, and work activities. A *t* test was computed for factors that had significant *F*-ratios. A total of 19 significant *F*-ratios and 11 significant *t* ratios was found ($P < .05$). Because of the small number of significant findings and their distribution among the variables, the hypothesis that there is no difference in leisure activities of delinquents on aftercare, delinquents on probation, and nondelinquents, was accepted.

126. WEAVER, Jack R. *A comparison of the Drivocator system and the conventional classroom method of instruction for accomplishing driver and traffic safety education courses.* Ph.D. in Physical Education, 1970. 130 p. (P. W. Everett)

Ss (N = 96) were randomly selected from 800 10th grade students enrolled in driver and traffic safety education. The experimental group received driver and traffic safety education classroom instruction through the Drivocator system, and the control group through the conventional classroom procedure. The classroom portion of the course covered: man-made laws; defensive driving and basic skills; the automobile; natural laws; the driver; insurance and driver responsibility; and enforcement, engineering, and other related topics. Following 6 wks. of instruction, 42 experimental and 41 control Ss had completed: 36 hrs. of classroom instruction, 6 hrs. of driver training, and 12 hrs. of observation on a multiple-car facility, 12 hrs. of simulation instruction, and 3 hrs. of behind-the-wheel experience, and 6 hrs. observation in traffic. An objective test on driving knowledge was administered to all Ss as a pre- and post-test. In addition, the McGlade Road Test was given to all Ss after the prescribed course was completed. It was concluded that no significant difference ($P > .05$) existed between the experimental and control groups in regard to pretest and posttest mean scores for driving knowledge and between the groups for road performance. Both groups improved significantly in driving knowledge but the total driving knowledge gain for each group was equal. An $\underline{r}$ of .30 indicated a low relationship between the posttest driving knowledge scores and the road performance test scores.

127. WOODWARD, William Frederick. A comparison of base-running methods in baseball. M.S. in Physical Education, 1970. 26 p. (D. Veller)

Varsity baseball players ($N = 22$) at Florida State University were tested in 3 methods of rounding first base. The first method was the "round out," in which S ran directly at the base and then swerved to the right and back to the left in order to circle the base. Second was the "narrow angle" method, where the S ran directly to a previously determined spot, 6 ft. outside the first baseline, and then turned toward first base. The "wide angle" was the third method tested, in which S ran directly to a previously determined spot, 10 ft. outside the first baseline, and then turned toward first base. During the 3-day testing period an electrical clock and 2 switches were used to measure Ss' 2 trials for each method. As the Ss ran, they made contact with the first switch, located 35 ft. from home plate, and started the clock. The clock was stopped when the Ss made contact with the second switch, 15 ft. from second base. Analysis of the times revealed the wide angle method ($P < .05$) as the best way of rounding first base. The narrow angle was the second best method, and the round out produced the slowest times.

## University of Georgia, Athens, Georgia (R. T. Bowen)

128. BIGELOW, Thomas W. Predictability of student physical activity selection. Ed.D. in Physical Education, 1970. 65 p. (R. T. Bowen)

The choices of physical activity of male college freshmen in a basic PE program were predicted by means of multiple regression equations comprised of: 1 measure of personality, 2 measures of social position, 5 measures of physical fitness, hometown size, and size of SHS attended. The criterion of physical activity was based on a cardiac cost study of 20 activities usually found in a required program. Although predictions for some Ss of the multiple regression equation were significant in and of themselves, an acceptable index for all Ss tested was not constructed.

129. KIM, Daeshik. Relationship of selected physical characteristics, forces, movement times, length of training, and rank in a particular sport. Ed.D. in Physical Education, 1970. 86 p. (M. F. Vincent)

Measures of movement time and force were taken on 40 male contestants ranging in age from 15 to 32 years who participated in the All Dixie States Open Karate Championship. Measures were taken on right hand, right foot, left hand and left foot maneuvers. No significant differences were found between the movement time of Ss because of rank or hand preference. No significant differences due to the interaction of basic skills and group Ss were found when the factor of time was involved. Significant differences were found among basic karate skills relative to time and force factors, between the 4 ranked groups relative to the force factor, and in the force factor as related to hand preference. The force factor seemed to be the major differentiating characteristic between ranks, and from observation of the competition there is reason to recommend that a weight classification system be adopted for karate competition.

130. LESLIE, Mary Dee. *Effects of movement exploration on physical fitness and motor ability in kindergarten and primary grades*. Ed.D. in Physical Education, 1969. 90 p. (M. Vincent)
An experimental group (N = 205) of children in grades K-3 was taught a 6-mo. program of movement exploration using the problem solving approach. The control group (N = 214) was taught a 6-mo. traditional PE program utilizing the explanation-demonstration-practice method of teaching. Pretest and posttest measures of physical fitness and motor ability were ascertained through use of the adapted Glover Physical Fitness Test for Primary Grades and the Iowa-Brace Motor Ability Test for Elementary School. The t tests and correlations indicated that the control and experimental groups improved on the fitness items, with the experimental group showing significantly greater gains than the control group in sit-ups and seal crawl at posttest measurement. The experimental group scored significantly higher than the control group in posttest total motor ability. All 10 motor ability items were significantly related to the total motor ability scores. Movement exploration contributed more positively to both physical fitness and motor ability than did the traditional PE program.

131. MARTIN, Ramey J. *Relationship between birth order and aptitude among preadolescent boys*. Ed.D. in Physical Education, 1970. 128 p. (R. T. Bowen)
Forty first-born and 40 second-born preadolescent boys from selected ele. schools in Western North Carolina were measured for motor aptitude using selected items of the Motor Aptitude Test of Ismail and Cowell. Performance scores were obtained for body balance on the floor, body balance on an object, and kinesthetic memory of the arms. Birth order was not found to be a significant determinant of motor ability. While motor aptitude is theoretically independent of age, in practice as operationally measured by the Motor Aptitude Test it is not independent of age within the age limits employed in this study. Items in the Motor Aptitude Test measuring kinesthetic memory of the arms, body balance on the floor, and the balance beam did not appear to possess a high degree of difficulty for the age limits tested. The items which appear to be most influential were found in the group of test items measuring body balance on an object.

132. PETTERSEN, Pearl C. *Interrelationship of kinesthesis, flexibility, joint angulation and motor ability in college women*. Ed.D. in Physical Education, 1970. 97 p. (M. Vincent)
College women (N = 58) were evaluated by means of the following instruments: Scott Motor Ability Test, 5 tests of kinesthesis, 17 measures of flexibility, and 3 measures of joint angulation. Motor ability was related to each of the dependent variables, and the interrelationships of all variables were computed. The relationship between motor ability and the other variables was generally low but 13 significant coefficients were noted. Only 5 significant correlations were found when relating kinesthesis to

flexibility and joint angulation, and 1 significant correlation when relating flexibility to joint angulation. None of the kinesthetic test items or the joint angulation items correlated significantly with the composite motor ability score. Correlation of each item within a given variable to every other item within the same variable supported the theory of the specificity of kinesthesis, flexibility, and joint angulation, as there were few significant relationships evident.

133. WARREN, William E. An application of existentialism to physical education. Ed.D. in Physical Education, 1970. 70 p. (R. T. Bowen)
An analysis of the writings of existentialists was made to determine implications for PE with regard to objectives, curriculum, and teacher-pupil relationships. It was found that the individual who seeks authentic existence may do so through physical activities. Individual goals may be achieved through participation in either competitive or noncompetitive individual activities, and the PE curriculum should include as many opportunities as possible for participation in each type of activity. The proper attitude of the student and the teacher toward learning are openness to the acquisition of new knowledge and receptivity to the teacher, students, and the subject matter as sources of knowledge. The dialogical relation between teacher and pupil is basic to the educational process and meaningful communication is essential in teacher-pupil relationships. There are no "existential" teaching methods. Evaluation should not be limited by imposing rigid controls or standards usually required in experimental research or objective testing.

## **Illinois State University, Normal, Illinois** (V. R. Crafts and R. L. Liverman)

134. BROWN, Cecilia Roberta. The Afro-American contribution to dance in the United States, 1865-1965. M.S. in Physical Education, 1970. 148 p. (M. Gray)
Original dance forms and styles indigenous to the U.S. which were contributed by the Afro-American to ethnic, jazz, modern and tap dance were reviewed. The role of the Afro-American in originating and developing tap dance into a dance act form and the role of the Negro in the minstrel show and the Negro musical comedy are related to original theater contributions, recognition and acceptance of black persons as entertainers, and evolvement of vaudeville shows. The role of the Afro-American in inventing various steps and styles of social dances and performance of Afro-Americans in dances like the Cakewalk, Charleston, Black Bottom, Lindy and its forms, discotheque dances and the Twist are well developed. To a lesser degree, the social dance contributions to the U.S. of the Afro-American of Latin America and the Caribbean were presented. That Afro-Americans danced to express themselves through modern, ethnic, and jazz dance on the concert stage at an early date, and were ultimately recognized as ballet dancers, is another focus.

135. CATTLE, Mary Susan. The effect of wrist strength on proficiency in the backhand stroke in tennis. M.S. in Physical Education, 1970. 49 p. (M. L. Jones)
College women (N = 14) in 2 beginning tennis classes were put into the control group or the experimental group by use of the stratified random

sampling process, employing variables of wrist strength and backhand proficiency to equate the groups. The experimental group received exercises to strengthen the abductors, flexors, extensors, and adductors of the wrist. Exercises were given 3 times weekly for 6 wk; 3 sets of 8 repetitions were performed for each action. Testing for between-group differences in wrist strength and backhand proficiency was done at the beginning, midway, and at the end of the study. The Bender table was used to measure wrist strength; the Broer-Miller Tennis Test was used to measure backhand proficiency. There were no significant differences between groups in either backhand proficiency or in wrist strength at the end of the wrist strengthening program.

136. DOBELL, Patricia D. A comparison of selected temperament traits among junior and senior women majoring in physical education, art and history. M.S. in Physical Education, 1968. 73 p. (V. R. Crafts)
The Guilford-Martin Inventory of Factors GAMIN was administered to junior and senior women aged 20-23 who were majoring in PE, art and history at Illinois State University. ANOVA and Duncan's range test showed that students majoring in the same subject displayed consistent temperament characteristics; that PE, art, and history majors, as groups, can be differentiated from each other on variables of nervousness, masculinity-femininity, and introversion-extroversion; that in comparison to both art and history majors, PE majors had a high tendency for engaging in overt activity, assumed leadership roles readily, were emotionally tough, were self-confident and calm; that in comparison to history majors, art majors displayed less interest in liking and engaging in overt activity, did not assume leadership roles, were more sensitive in emotional make-up, lacked self-confidence, were nervous, tense and irritable.

137. HAUGER, Janet Vaksdal. Avant-garde choreography of the sixties: A lecture demonstration. M.S. in Physical Education, 1970. 32 p. (F. Clark)
Chance choreography as used by Merce Cunningham, total theatre as pioneered by Alwin Nikolais, and dance happenings as developed by Ann Halprin were explored. Choreographic characteristics of each style and its associated personality were defined and clarified and then 3 pieces were choreographed, 1 in each style. College dancers, selected by audition, were then taught the choreography. The choreography was presented to a live audience in a lecture-demonstration format which permitted exploration of the choreographic styles. The script for the lecture-demonstration not only defined the 3 selected avant-garde choreographic styles, but also traced modern dance avant-garde movements through the 20th century and explained ways in which the researcher had approached the dance choreography. In order to provide a permanent record, the lecture-demonstration was video-taped.

138. MANAHAN, John Michael. Effects of weight reduction on certain anthropometric, physical, and performance measures of high school wrestlers. M.S. in Physical Education, 1970. 81 p. (R. W. Koehler)
Twelve SHS varsity wrestlers were tested for 5 consecutive days on a total of 20 anthropometric, physical, and performance measures. ANOVA indicated that 13 of 20 measurements were significant ($P < .05$). The amount of weight lost by Ss was also statistically significant, with the wrestlers

ultimately losing 6.9% of their body weight (10.44 lbs.) on the average. The amount of weight lost did not adversely affect measurements of strength, cardiovascular endurance, and reaction time.

139. MCHUGH, Mary-Margaret. Personality traits of varsity lettermen of Illinois State University. M.S. in Physical Education, 1970. 79 p. (V. R. Crafts)

The Cattell 16 PF Test was administered to 97 Illinois State University lettermen in the sports of baseball, basketball, football, golf, gymnastics, swimming, tennis, track, and wrestling. One-way ANOVA and *t* test indicated that individuals within the same sport did differ on personality traits, that lettermen in baseball, basketball, and swimming differed significantly from lettermen in football, golf, and gymnastics on emotional stability (respectively the highest and lowest mean scores of all the groups), that with the exception of Factor C, emotional stability, there were no significant personality trait differences between athletes in the various sports groups, and that there were no significant differences between athletes of 3 contact categories of body contact, implement contact, and noncontact.

140. RENNECKAR, Cheryl Ann. Personality traits of selected women intercollegiate athletes. M.S. in Physical Education, 1970. 80 p. (V. R. Crafts)

Cattell's 16 PF Test, Form A was administered to women intercollegiate athletes who had not participated in SHS competition and women intercollegiate athletes who had participated in competition. One-way ANOVA indicated no significant differences ($P > .05$) on any of the personality factors. Conclusions were that SHS competition did not appear to significantly affect the personalities of women intercollegiate athletes; that team and individual sports players did not differ significantly in personality; that directional relationships, as specified in data interpretation, suggested that the competitive group may be somewhat more aggressive and competitive, easily upset and unreliable than the noncompetitive group, which may be somewhat more mild and conforming, emotionally stable and reliable; and that the team sports group may be somewhat more aloof, serious, and free thinking than the individual sports group, who may be somewhat more warm, happy-go-lucky, and conservative.

141. SWANSON, Diane June. Effects of heat, cold and exercise on dysmenorrhea in college women. M.S. in Physical Education, 1970. 151 p. (E. D. Kelly)

The effectiveness of heat, cold, and exercise in relieving primary dysmenorrhea, the relationship between menstrual pain and incapacity, and changes in discomfort traits associated with the heat, cold, and exercise treatments were explored. College women students ($N = 150$), who reported dysmenorrhea, were placed in 4 groups (heat, cold, exercise, and control on orange juice). Treatment and related evaluation extended over 3 months. ANOVA was used to determine if there were significant differences within and between the four groups as to relation of pain and treatments. Conclusions were that while pain associated with the menstrual cycle was reduced significantly by use of heat, cold, and exercise, no one modality was best; that a high positive correlation existed between pain and incapacity; that cold and heat caused an early significant reduction of menstrual pain, while exercise significantly reduced pain in the second month, and orange juice caused a significant pain reduction in the third month; and that heat, cold, and exercise all helped to reduce associated discomfort traits.

142. VRBA, William Frank, Jr. The growth and development of the American Sokol Organization from 1946 to 1970. M.S. in Physical Education, 1970. 78 p. (W. O. Truex)

Information was gathered primarily in the form of taped interviews with high-ranking American Sokol Organization (ASO) officials, and by various publications that have been distributed by ASO. Letters, newspapers, and documents also contributed to the gathering of data. Information from all the sources helped in documentation of answers to the following questions: How was the American Sokol Organization and movement able to grow and expand from 1946 to 1970? How was the ASO able to help promote the sport of gymnastics from 1946 to 1970? What is the ASO doing for youth and adults in the U.S. today? Documentation of these questions gave an insight into the philosophy, goals, and aims of the ASO. Contributions of prominent U.S. people who have given support to the Sokol movement are documented. Contributions of the Sokol Organization to an individual's moral, aesthetic, and intellectual being, as well as his physical development, were also shown.

143. WALLACE, Bruce Lee. The effects of three liquids on motor performance. M.S. in Physical Education, 1970. 40 p. (R. D. Liverman)

Ten members of the ISU freshman basketball team served as Ss. Measurements of reaction time, grip strength, vertical jump, and a 3-min. step test were given before and at the completion of the basketball practice session on each of 4 test days. Each S was tested under the 4 conditions of Bike Half-Time punch, Pepsi Cola, water, and a control of no liquid. The liquids were consumed during a 3-min. rest period midway through the workout and at the completion of the workout. A repeated measures ANOVA indicated that Bike Half-Time Punch was found to facilitate reaction time when compared to water and no liquid. Consumption of any of the 3 liquids did not have a beneficial effect on the other 3 motor performance measures. No liquid did not have an adverse effect on the performance of the motor tasks.

## Indiana University, Bloomington, Indiana (J. M. Cooper)

144. ARNOLD, Donald J. Attitudes of public school and municipal recreation authorities in southwestern Ontario toward policies for the joint acquisition, development and utilization of school facilities for school and recreational use. Doctor of Recreation, 1970. 146 p. (T. R. Deppe)

A jury of experts was utilized in the development of a checklist questionnaire comprised of an attitude scale and progress status scale. The questionnaire was administered by personal interview to 45 school and recreation authorities selected at random from a proportionally stratified sample of county directors of education, chairmen of county school boards, municipal recreation directors, and chairmen of municipal recreation boards in southwestern Ontario. A 5-point rating scale was used to rate S's attitudinal response toward each statement and toward progress in the implementation of that statement. Through correlation and chi square it was determined that cooperative planning between the 2 authorities should be continuous, schools should be used for recreational purposes and should be based on a school-city master plan. Legal liability for the community use of school facilities should be specified in written agreements.

145. BAUGH, Robert Joe. The health education preparation of health and physical education graduates of Austin Peay State University with implications for curricular changes. H.S.D., 1970. 283 p. (D. J. Ludwig)

Data were obtained through the use of questionnaires, rating scales, and personal interviews. Data were concerned with personal occupational information, performance, preparation, and importance of HE duties, methods for correcting weaknesses in preparation, recommendations for improving the undergraduate program, value of undergraduate courses, and reasons nonteachers were not teaching. It was determined that teaching responsibilities involve performance of a wide variety of HE duties, improved undergraduate preparation is needed, one of the most valuable undergraduate experiences is student teaching, and the need for continual evaluation of the relevance of the preparatory program for HE is supported by the suggestions of the graduates.

146. BEHNKE, Richard Carl. The effect of task complexity on reaction time, movement time, and accuracy. Doctor of Physical Education, 1970. 91 p. (A. T. Slater-Hammel)

Sixty male graduate students were randomly assigned to 6 treatment groups. Ss reacted to an auditory stimulus and were given 50 experimental trials. Group I attempted to hit a stationary 1 1/2-in. target; Group II, a stationary 1-in. target; Group III, a stationary 1/2-in. target; Group IV, an oscillating 1 1/2-in. target, Group V, an oscillating 1-in. target; and Group VI, an oscillating 1/2-in. target. The randomized groups design, with a 2 X 3 factorial arrangement of treatments, was used to analyze the data and determine the effect of task complexity on reaction time, movement time, and accuracy. The t-test was used to determine the effect of errors on reaction time and movement time, and Pearson product-moment correlations were computed to test for relationship between the 3 variables.

147. BENDER, Stephen Joseph. The human reproduction knowledge of prospective elementary teachers. Doctor of Health Science, 1970. 143 p. (D. J. Ludwig)

This was an effort to determine the human reproduction knowledge of senior ele. education students in the State NCATE-approved teacher preparation institutions of Tennessee. Data were obtained from the administration of McHugh's Sex Knowledge Inventory, Form Y. Analysis and evaluation of the data involved both inferential and descriptive statistics as they referred to the institutions and their respective students constituting the judgmental sample. The major findings were no significant difference between the mean scores of the respondents grouped according to institutions tested; an overall mean score of the prospective ele. teacher corresponded closely with the overall mean score of a sample of 941 sophomore and junior college students; the null hypotheses expressed in practical differences which concerned the marital status and brother-sister variables were found to be untenable; Ss displayed lack of knowledge concerning the location and function of specific organs in the male and female reproductive systems.

148. BRAWN, Christopher Alan. An instrument for evaluating the intramural sports programs for men at degree-granting institutions in Canada. Doctor of Physical Education, 1970. 141 p. (J. M. Cooper)
The instrument was developed to satisfy criteria for the development of evaluative instruments and was validated by a jury of intramural experts. Reliability of the instrument was determined from the instruments returned by the intramural directors, at degree-granting institutions in Canada, who had evaluated their intramural programs on 2 different occasions. The jurors selected 117 of the 126 intramural criteria in the preliminary instrument as acceptable for inclusion in the final instrument. The test-retest reliability coefficient of the instrument was .95. The majority of the participating institutions satisfied at least to a moderate degree, 107 of the 117 intramural criteria in the instrument. The instrument is valid and reliable, and the majority of participating institutions appear to have well organized intramural sports programs for men.

149. BROWN, D. Patricia. The effect of augmenting instruction with an improvised teaching aid for college women in learning selected badminton skills. Doctor of Physical Education, 1970. 135 p. (E. Davies)
This study determined the effect of using a suspended shuttle (with a release mechanism) to practice the clear and smash strokes in badminton. Ss were 101 college freshman women divided into 4 groups. One group did not use the teaching aid, while 3 groups used the aid for either 10 weeks, the first 5 weeks, or the second 5 weeks. The 3 individual criterion measures included the newly constructed Overhead Distance Hit Test and the Brown Smash Test, in addition to a modified French Clear Test. ANCOVA determined that the aid may be used effectively to develop "power hitting" (hitting for distance) if used for 10 weeks or the second 5 weeks. Softball or tennis experience appears to enhance the ability to learn overhead strokes in badminton.

150. BRENNAN, William. A guideline policy inventory guide for ambulance services in Indiana. Doctor of Health Science, 1970. 257 p. (D. J. Ludwig)
Potential guideline policies were extracted from the professional literature and interviews with ambulance owners and operators. A rating scale instrument was developed. A pilot study was conducted to refine the policies and the rating instrument and it was submitted to a jury for rating. A mean value of 3 or higher qualified a guideline policy for the inventory guide. An intraclass correlation coefficient was derived to estimate the reliability of the raters. It was determined that there was agreement among the 4 major groups of the ambulance profession on the importance and acceptability of the guideline policies. There was a positive relationship between the importance and acceptability of a guideline policy.

151. BRIGL, Clemens. Analysis of leisure interests and desires of Indiana University married students. Re.D., 1970. 233 p. (J. MacLean)
A random sample of 1,000 married students had questionnaires with coded answer sheets mailed to them. The Ya12 and Quap 1-2 programs of computing were used. Criteria used were on or off-campus residency, age, number of children, age of children, income, and interest. The evidence indicated married students represent a community and Indiana University has some responsibility for providing recreation facilities, equipment, and

programs. A need exists for comprehensive master planning for allocation of open space, recreation facilities, and recreation programs, and there is an immediate need for coordinating existing recreation programs, communicating opportunities, and clarifying existing policies in recreation.

152. BUCHANAN, Donald Ward. Measurement of Class A boat operators' knowledge of Minnesota boat and water safety laws. Doctor of Recreation, 1970. 170 p. (T. R. Deppe)
A 20-question multiple choice test was developed to include questions relative to boat licensing procedures, boat operational practices, boat equipment, and general water safety practices. Findings revealed that Class A boatmen possess a relatively low level of knowledge of the boat and water safety laws of the State of Minnesota. Factors of different launch sites and lakes with varied boat density ratios do not affect the boat and water safety knowledge test scores of Minnesota Class A boatmen. The Minnesota Boat and Water Safety Test is a difficult test, and, with revision, it could become a more precise instrument to measure Class A boatmen's knowledge of the boat and water safety laws of the State of Minnesota. The Minnesota State Legislature should enact legislation creating a boat operator's licensing program.

153. CASPERSON, Donald G. A first aid and emergency care knowledge test for college students. H.S.D., 1970. 146 p. (J. K. Rash)
Two preliminary test forms were constructed in adherence to the table of specifications established by a jury of 31 college instructors experienced in teaching first aid. The test forms were administered to 518 students at Indiana University. Items (N =185) were selected for the development of the final test forms. Two forms of 86 items each were constructed so that the content, item difficulty, and item correlation were equivalent. The final test forms were administered at 25 U.S. colleges and universities and yielded 3,355 usable answer sheets. Equivalency of forms and norms were established for the final test forms. The major findings were: the final test forms had similar measures of central tendency and variability, Form FA yielded a slightly higher mean (50.71) than Form FB (49.75), and the correlation coefficient between final test forms was .85. Final test Forms FA and FB are valid and reliable instruments for measuring the first aid and emergency care knowledge of college students. These two forms constitute equivalent forms and may be used interchangeably.

154. COLVIN, Carolyn. The effect of rhythmic training and relaxation training on sensory-motor rhythmic ability. P.E.D., 1970. 166 p. (E. A. Davies)
An initial test of sensory-motor rhythm was given to 563 Western Illinois University college women. Of this group, 119 women, who scored low on the initial test, participated in the study. Ss were randomly divided into groups; and 4 conditions (rhythmic, relaxation, rhythm and relaxation, and control) were randomly assigned to groups. Training was given in 16 50-min. lessons. Before and following the lessons Ss taking relaxation were given the Rathbone Manual Tension Test. The 107 Ss who completed the training took the final test on sensory-motor rhythm. Scores on the Muscular Tension Test were analyzed by means of t tests. Data on the sensory-motor rhythm test were considered totally and also subdivided into 8 categories. ANCOVA and Duncan's range test determined that

rhythmic-relaxation training was significantly more effective than other training, and relaxation training was significantly better than no training when scores were analyzed on the total number of rhythmic patterns in which Ss received training.

155. CONSIDINE, William James. A validity analysis of selected leg power tests. P.E.D., 1970. 143 p. (G. F. Cousins)
A scientifically founded criterion measure was employed to assess true leg power. The relationships which existed between the criterion task and the selected leg power performance tasks were determined. Leg power tasks selected were the vertical jump and reach test, standing broad jump, chalk broad jump, 5-yd. sprint, 10-yd. sprint, and a 5-yd. sprint with a 5-yd. running start. Male students (N =105) were administered multiple trials of the selected tests and the criterion performance task, a modified vertical jump from a force platform. The force-time measures were then used to calculate composite power scores through utilization of a derived power equation. These composite power scores were used to compute correlations for the purpose of determining the validity of the independent variables as tests of leg power. The use of these tests for the purpose of assessing leg power does not seem to be justified; the vertical jump and reach test possessed the greatest relationship to the criterion power measure; and variation in measurement method of the vertical jump and reach test had no significant effect upon the assessment of leg power.

156. CORRIE, Bruce A. A history of the Atlantic Coast Conference. P.E.D., 1970. 396 p. (J. B. Daugherty)
The historical development of this conference was studied in relation to the heritage of competitive athletics in the U.S. and its particular development in the South; the evolution of regional athletic conferences and national athletic associations; the problems of intercollegiate athletics; and the reasons institutions sought conference affiliation. Data were obtained from minutes of the Conference meetings, commissioners' reports, committee reports, correspondence, personal records, personal interviews, NCAA proceedings, yearbooks, and newspapers. Conferences were organized to control and regulate the conduct of intercollegiate athletics to insure equality of competition and combat the evils of competitive athletics. To be successful, a conference had to be composed of institutions with similar philosophy, programs, and problems. When the interests of the member institutions became too divergent, or the size of the conference became too unwieldy, then a split was inevitable. Such was the case with the regional athletic associations in the South.

157. CURTIS, Joyce. The effect of four methods of spare conversion involving variations in point of aim on bowling achievement of college women. P.E.D., 1970. 168 p. (A. A. Aldrich)
Beginning college women bowlers (N = 48) were given instruction in the 4-step approach and hook ball delivery. Difference in instruction was presentation of a different method of spare conversion to each class. Variations of the point of aim technique for conversion were based on 2, 3, 4, or 5 points of aim. All methods employed 5 basic positions on the approach: the strike or 5 pin, the 7 pin, the 8 pin, the 9 pin, and the 10 pin. Actual game scores, in terms of average and second ball efficiency scores, were analyzed by ANCOVA. No significant differences were found among

the adjusted mean averages or adjusted mean second ball efficiency scores for the groups. Improvement in bowling averages was experienced by all groups, with the largest net gain produced by the group using 2 points of aim. All groups revealed a significant improvement in second ball efficiency scores.

158. ENTY, Frank Edward. Emotional status and other selected factors in the smoking behavior of high school seniors. H.S.D., 1970. 140 p. (D. J. Ludwig)

A 78-item questionnaire containing the Stouffer Neuropsychiatric Screening Adjunct was administered to an opportunely gathered sample of 3,250 for information on student smoking behavior, parental smoking practice, age, sex, and emotional status. Findings were: smoking among school age children reaches its peak the senior year, SHS age youngsters experiment with smoking but few adopt the practice as a habit, senior males have smoked longer and more than senior females, younger seniors initiated smoking earlier than their older classmates. There is a difference in response of senior smokers and nonsmokers to a scale measuring emotional status; emotional status is a factor in the smoking practice of secondary school children; and parental smoking practice is influential in the smoking behavior of children. Student responses to sections of the questionnaire pertaining to smoking were tabulated by computer and statistically treated using the $X^2$ test for K independent samples in determining whether observed differences between age, sex, smoking status, number of cigarettes smoked daily, etc., were meaningful.

159. GEESAMAN, Patricia L. The health status of Project Head Start children and non-Project Head Start Children from the same socioeconomic level. H.S.D., 1970. 106 p. (D. J. Ludwig)

A list of Bloomington, Indiana, Project Head Start children was compared with the enrollment lists of the Monroe County School Corporation in order to determine the number of children presently enrolled and in which school they were located. Following this survey, a health status inventory was developed and a scale for determining socioeconomic levels was selected. The health records of 31 children were selected because they were housed in 1 ele. school and this allowed for a closer control of the socioeconomic level. Ss were matched on the basis of age, sex, and socioeconomic level. Data were analyzed descriptively and chi-square analyses were made on selected variables. The previous Project Head Start and non-Project Head Start children were found to be similar with respect to their overall health status and family history. More Project Head Start children had the standard childhood immunizations than the non-Project Head Start children.

160. HUTINGER, Paul. Comparisons of isokinetic, isotonic, and isometric developed strength to speed in swimming the crawl stroke. P.E.D., 1970. 90 p. (J. E. Counsilman)

Data collected were initial and final measures on 1 control and 3 experimental groups in terms of scores for the 25-, 50-, and 100-yd. swimming tests, as well as arm strength measured both statically and dynamically. Ss were 61 college boys ages 17-23, drawn from four aquatic conditioning classes. It was determined that the isokinetic treatment group made significant improvement in 4 of the 5 dependent variables; there was no significant difference between treatment groups; swimming training appeared to have an effect on strength increase for the control group; and the isotonic group did not have significant gains in the swimming events. However, the other 3 groups showed significance.

161. KING, John Morgan, Jr. *A comparison of attitudes toward public camping in state and federal outdoor recreation areas.* Re.D., 1970. 389 p. (T. R. Deppe)

This study was made to determine, analyze, and compare personal attitudes of federal and state administrators, private campground operators, and representatives of the camping public toward issues arising from differences in contemporary practice, policy, and thought pertaining to tent and trailer campground planning, development, and operation. An attitude scale of 100 statements, based on issues developed from a 1965 survey of issues and problems of family camping, was distributed to 700 individuals randomly selected nationwide to represent the 7 populations studied. Utilizing chi square, each sample reaction and the expression toward each statement was tested for significance, as was the influence of personal backgrounds of the respondents. Variance in attitudes, and varying levels of agreement were apparent. Background characteristics of administrators and campers appeared to influence their attitudes toward prevailing camping issues. Diversity and conflict in campground policies and practices are extensive among government agencies and private operation. Understanding of issues and problems and joint effort and cooperation in problem solving are needed.

162. KRAMER, William Dennis. *A computerized system for analyzing and evaluating performance data in physical education.* Doctor of Physical Education, 1970. 179 p. (G. F. Cousins)

Following the development of the computerized system consisting of a Fortran IV computer program and a comprehensive user's manual, a 1-semester study was conducted in which the efficiency of the computer service was evaluated. Teachers (N =32) used the computerized system to analyze and evaluate performance data and assign students term and final grades. They were divided into a local school system group and a mail participation group. Three evaluative techniques: keeping cost analysis records on the computerized system, surveying the opinions of teachers using the computerized system, and surveying opinions of students who were evaluated and graded on the basis of the computer analysis, were used. It was found to be a valid and reliable method for analyzing data produced from measuring student performances. It was not feasible to use computerized service by corresponding through the mail. Computerized service offered a more effective technique for informing students of the basis on which their term and final grades were made. It provided teachers with a more valid and reliable procedure on which to make grade assignments.

163. LAWSON, Richard. *Practices and opinions of selected public officials with regard to fees and charges for park and recreation services.* Re.D., 1970. 163 p. (T. R. Deppe)

National authorities, composed of mayors, city managers, park and recreation executives and finance officers, were administered an opinionnaire to determine the rationale in assessing fees for park and recreation services. Indiana park and recreation executives were administered a questionnaire concerning local parctices in charging fees. Results revealed that the 6 groups of public officials agreed that tax funds cannot serve all recreation interests and needs, fee rates should be determined by need and not used as income producers, exclusive use of facilities should involve a fee; greatest agreement was between Indiana park and recreation directors and city managers, and least agreement was between national park and recreation directors and municipal finance officers; fees for services ranged from 5% to 42% of expenditures, with an average of 17% in Indiana municipalities; and rates will be increased in 38% of park and recreation services in Indiana municipalities. It was determined that proportions of park and recreation budgets derived from fees will increase; bases for establishing fees lack agreement by public officials; and written policies as the basis for assessing fees in Indiana are lacking.

164. McINTOSH, Joseph William. An analysis of professional role activities of sanitarians employed by local health departments in Indiana. H.S.D., 1970. 175 p. (J. K. Rash)
Investigated were the professional or on-the-job activities conducted by sanitarians employed in the State of Indiana, the degree to which they were satisfied with their involvement in conducted activities, the relationship of experience, education, type of health department, and registration status to the number of activities conducted, and reasons why specified activities were not being conducted. A questionnaire containing personal data, nature of work or activities, opinions concerning involvement in listed activities, and reasons why specified activities were not being performed was used. It was determined that many activities in which local sanitarians could be involved are not being conducted; they were satisfied with their involvement in the more frequently performed duties, and desired to be more involved in those activities conducted with the least frequency; and there was no significant relationship between education, experience, type of health department and registration status to the number of activities being conducted.

165. NOTO, James V. A status study of the professional graduate programs in safety education in selected colleges and universities in the United States. H.S.D., 1970. 124 p. (B. I. Loft)
A questionnaire refined by a jury of safety education specialists was mailed to 68 institutions. It was found that the major percentage of time in the professional graduate preparations in safety education is devoted to teacher preparation; hours offered in the programs range from 9 to 69 semester hours, and from 12 to 60 quarter hours; priorities that should be considered for current and future needs are more and better qualified faculty, better financial backing, more courses, and increased numbers of better qualified students, better equipment and facilities. It was concluded that a divergence of administration and organization practices exists, an insufficient number of faculty members hold doctorates, faculty membership in professional organizations appears to be inadequate, graduate hours offered are insufficient, and a variance of opinion appears in determining priorities for current and future needs of the programs.

166. PAULSON, Patricia Callahan. Psychosocial factors in drug use among community college students. H.S.D., 1970. 127 p. (D. J. Ludwig)
An instrument was developed which included demographic data, statements of attitudes toward drugs and drug use, reasons for using drugs, frequency of use, and facts about users. Tests of self-image, self-esteem, and

motivation to avoid failure/motivation to achieve success were adapted and included in the instrument, which was administered to 164 students enrolled in 7 PE classes at Queensborough Community College, New York. Descriptive comparisons, t test, and chi square revealed that 38% of the students indicated they were using or had used drugs; the most frequently used drugs in order of their use were hallucinogens, amphetamines, barbiturates, opiates, and tranquilizers; 61% began smoking marijuana in SHS; 77% indicated their initial source of drug supply was a "friend"; and significant differences between users and nonusers were found on self-esteem, college major, sex, HE courses in SHS, and home atmosphere. Major conclusions were: Drug users are not interested in stopping their practice nor in the potentially harmful effects to their health; a HE course in SHS has little effect on the nonuse of drugs, especially with boys; there is a difference between drug users and nonusers on a measure of self-esteem; and the instrument is capable of distinguishing drug users from nonusers.

167. PHELPS, Dale. Current practices and recommended guidelines for the administration of sports clubs in selected four-year midwest colleges and universities. P.E.D., 1970. 289 p. (G. F. Cousins)
Eight problem areas were included in the study: philosophy, registration and institutional sanction, eligibility, finance, medical supervision, equipment and facilities, interclub competition, and travel. Data obtained from 2 checklists and the visitation-interviews were analyzed, and comparisons were made between larger and smaller institutions, state supported and privately endowed institutions, and institutions' current practices and jury's recommended best practices. Evidence indicated a general agreement between current practices and recommended best practices. Those observed differences reflected a more idealistic approach presented by jury-men. The recommended sports club guidelines are considered to be basic and general in nature and usable at most institutions.

168. PYFER, Jean L. The effects of selected physical activities on moderate mental retardates' static and dynamic balance. P.E.D., 1970. 271 p. (E. A. Davies)
An attempt was made to improve the static and dynamic balance performance of moderate mental retardates with a hierarchically arranged series of balance lessons. A subpurpose was to suggest activities and rhythms for this age group which incorporated the balancing tasks and appealed to the Ss. Three intact classes of Ss ranging in age from 8-12, with IQs of 35-59, were assigned treatments at random. Pre- and post-study static and dynamic balance performance were measured by a modified Ozeretzky Motor Development Scale. One group received 40 daily 1/2-hr. experimental PE lessons. The Hawthorne effect group received 40 daily 1/2-hr. language development lessons and daily 1/2 hr. PE lessons. The neuromuscular maturation group received no additional attention but participated in 1/2-hr. daily free play of PE. The first group improved significantly in balance. Gains resulted from tasks included in the experimental PE lessons. The Hawthorne effect group improved significantly in ability to slide, walk forward and backward, and to hop. The neuromuscular maturation group improved significantly in ability to jump consecutively in one place.

169. SAWYER, Fred. The effect of training methods on basketball field goal shooting accuracy and ball toss distance. P.E.D., 1970. 154 p. (G. F. Cousins)
The 5 training methods consisted of various combinations of field goal shooting and progressive resistance wrist flexion exercises, which imitated the shooting motion. Ss (N = 55) were assigned to treatment groups on the basis of a 30-shot field goal shooting accuracy test. Four preliminary tests to determine shooting accuracy at 2 distances from the basket, wrist flexion strength, and maximum ball toss distance were administered. Training methods were administered 3 days a wk. for 4 wks. The tests were readministered after the training period. It was determined that shooting practice resulted in improvement in shooting accuracy over the other 4 treatments at 18 ft. from the basket. None had a significant effect on shooting accuracy at 24 ft. from the basket. Weight training, as well as a combination of weight training and shooting practice, resulted in significant improvement in wrist flexion strength over the other 3 groups. Weight training resulted in significant improvement in maximum ball toss distance for all but the combination group.

170. SCHWOMEYER, Herbert F. A history of Indiana high school basketball. Doctor of Physical Education, 1970. 475 p. (J. B. Daugherty)
Daily newspapers, SHS yearbooks, high school newspapers, pamphlets, personal scrapbooks, and personal interviews were sources of information. It was found that basketball was invented out of necessity, its popularity grew rapidly, the IHSAA was organized to bring order out of chaos in the athletic program, development and progress of the Indiana High School Basketball Tournament is reflected in the administration of the program by the IHSAA, and the IHSAA has served as a pattern for other state athletic associations. It was recommended that a historian be assigned by the IHSAA, a history of basketball be made for each county, and IHSAA have someone assigned to make an annual study of the IHSAA Basketball Tournament.

171. SPASOFF, Thomas. Effects of two aquatic instructional methods upon student attitudes, swim times, and selected physiological parameters. Doctor of Physical Education, 1970. 132 p. (J. E. Counsilman)
College Ss (N = 72) from 6 aquatic conditioning classes were given the Wear Attitude Inventory Test and the Harvard Step Test. It was determined that the instructor-motivated method had a significant effect upon student attitudes toward PE, the critical threshold value, and the physical fitness index; and neither instructional method had a significant effect upon reducing swimming time for various distances. The evidence indicated that both instructional methods may elicit a change in Ss' swim distance times and the selected physiological parameters. Only the instructor-motivated method had a positive effect upon student attitudes toward PE.

172. SULLIVAN, William J. The effects of three experimental training factors upon baseball throwing velocity and selected strength measures. Doctor of Physical Education, 1970. 117 p. (J. M. Cooper)
Determined was the effect of 3 experimental variables on baseball throwing velocity and strength, and the degree of relationship between throwing velocity and strength. Ss (N = 48) were randomly assigned to 1 of 8 treat-

ment combinations resulting from a factorial arrangement of the 3 experimental variables. Ss were tested for throwing velocity and strength before beginning a 6-wk. training program. At the conclusion Ss were retested. ANCOVA, ANOVA, and multiple correlation determined that training with weights was more effective as a means of increasing baseball throwing velocity than training with a wall pulley in simulating the baseball throwing motion; progression or nonprogression of resistance had no effect upon grip strength, wrist flexion strength, or medial arm rotation strength, and there was a low relationship between strength and baseball throwing velocity.

173. VERHOVEN, Peter John, Jr. A comparative analysis of junior college recreation curricula with a suggested model curriculum in recreation program leadership. Doctor of Recreation, 1970. 184 p. (T. R. Deppe)

Purposes were to provide an account of the status of recreation programs offered in U.S. junior colleges, analyze college curricula, develop a model 2-year postsecondary curriculum in recreation program leadership, and make a comparative analysis between the model curriculum and those courses of study presently offering a recreation curriculum. A postcard inquiry to 826 junior colleges revealed 44 with recreation programs. Basic data on these programs were obtained by questionnaire. Information on course requirements was procured through college catalogues. Chi-square tests of goodness of fit were used to determine if significant differences existed between course requirements and requirements of the model curriculum. Junior college recreation curricula, regardless of the variable chosen, do not meet the standards of the suggested model curriculum and are not adequately preparing personnel for leadership positions in the field of recreation. The internal organization, administrative structure, and period of initiation of a program were found to significantly affect the course requirements of junior colleges with recreation curriculums.

174. WALTER, Harold John. A critical analysis of the United States Air Force Academy's physical proficiency testing program. Doctor of Physical Education, 1970. 168 p. (G. F. Cousins)

This study was conducted to develop a physical proficiency program based upon an investigation of the relationship between the USAF Academy's Candidate Physical Aptitude Examination (PAE), its Physical Fitness Test (PFT), and the Air Force's test (PFT) involving the 1.5-mile running test. Cadets (N = 200) were randomly sampled and administered the tests twice. The use of the average score of the appropriate trial groups in lieu of the best score as the criterion measure, appeared to be the proper method for scoring multitrial test items of the PAE and PFT. The 3 tests used to analyze the PAE, the PFT, and the 1.5 mile results were found to be reliable and valid. On the basis of its poor relationship with the 1.5-mile test, the PAE did not appear to measure cardiovascular endurance. Muscular strength, particularly in the arms, is not necessarily commensurate with cardiovascular endurance capacity. This conclusion was based upon the low correlation of the PAE and PFT test items with the 1.5-mile test. The ponderal index and body surface area physique type of indices appeared to be of little value. The residual index and the drop-off index, when related to the 1.5-mile test, did not sufficiently measure the quality of cardiovascular endurance as found in prolonged running.

175. WARREN, M. Roger. Management guidelines for water-oriented recreation. Doctor of Recreation, 1970. 222 p. (R. W. Tully)
Management practices on 38 lakes were investigated. A list of 302 management practices from interview data was divided into 17 sections to facilitate evaluation by a jury of 13 experts. The jury recommended 175 management guidelines dealing with land- and water-use policies, lake regulation and zoning, fees and charges, personnel, public relations, education, and facilities. Findings included: operating goals and objectives should be documented; the managing agency should maintain control of the lake shorelines; cottage development on private lakes should be permitted after public access to the lake has been ensured; the agency should limit drawdown of water level; the state should require a boat operator's license for persons operating motorboats, swimming should be restricted to designated areas and lifeguards provided; responsibility for maintenance should be designated to a unit within the managing agency. The guidelines provide a good basis for managers to evaluate management policies and practices and water-oriented recreation management.

## University of Iowa, Iowa City, Iowa (L. E. Smith and M. G. Scott)

176. BOOTH, Frank W. Effect of exercise upon incorporation of $^{14}$C-L-proline into Achilles tendon. Ph.D. in Physical Education, 1970. 136 p. (C. M. Tipton)
The synthesis of collagen in the Achilles tendon was studied at various time intervals after a single exercise bout. Male albino rats (Sprague-Dawley), approximately 55-60 days old, were divided into the following groups: no exercise bout, 6 hr. after an exercise bout, and 12 hr. after an exercise bout. Animals ran for 30 min. in a motordriven treadmill at a belt speed of .3 mph and $0^{o}$ grade inclination. At either 6 or 12 hr. after the termination of the exercise bout duplicate samples of the Achilles tendons were incubated for 2 hr. with $^{14}$C-proline in a Krebs bicarbonate medium. At the same time duplicate samples of an Achilles tendon from nonexercised rats were also incubated. Following incubation, the Achilles tendons were analyzed for the specific activity of hydroxyproline, specific activity of proline, and size of the tissue-free pool of $^{14}$C-proline. No findings from the 3 experimental groups had statistical significance.

177. BRUNNER, Burton C. Relationship of friendship status to physical ability and to learning novel motor skill. Ph.D. in Physical Education, 1970. 161 p. (L. E. Alley and D. A. Parton)
Selected physical ability tests and friendship-status questionnaires were administered to 269 sixth grade boys. On the basis of friendship-status scores, in-class practice groups consisting of boys with similar friendship-status scores, and groups consisting of boys with dissimilar friendship-status scores were formed. During a training period of 4 to 6 wk., each group practiced the novel skill during a part of 12 PE class periods. At the end of the training period, the novel skill test was again administered. Results showed that sixth grade boys who were highly accepted by their peers were superior to rejected-ignored boys and to moderately accepted boys in physical ability. Grouping in accordance with friendship-status scores had no effect on the learning of a novel motor skill by members of

the group. Sixth grade boys who were highly accepted by their peers not only performed a novel skill better than all other sixth grade boys, but also continued to learn this skill better than all others.

178. ELLIS, Margaret. The effects of movement education on kinesthetic perception. M.A. in Physical Education, 1970. 89 p. (M. G. Scott)
Four classes of 26 or 27 children were taught PE twice a week by their homeroom teachers, 1 class of each grade receiving the movement education program and 1 class receiving the traditional program. Four tests of kinesthetic perception were administered at the beginning and the conclusion of 6 months: balance on a stick, standing broad jump specified, grip to a designated amount, and arm raising sideways 90°. Results indicated that Ss in the movement education program made significantly greater gains ($P < .05$) on 3 of the tests and a greater but nonsignificant gain on the balance test. There was no significant difference in the mean gains of the boys and girls within either group.

179. FRANCIS, Peter R. Influence of a weight training program on quadriceps reflex time. M.A. in Physical Education, 1969. 105 p. (C. M. Tipton)
Quadricep reflex time and muscle strength data were obtained from 65 male college students before and after a 6-wk. experimental period. Ss ($N = 36$) participated in a training program specially designed to strengthen the muscles of the quadricep group, while 29 control Ss were students not enrolled in physical activity courses. Reliability of the testing procedures was evaluated on the same day and 1 wk. later, and none of the r s were lower than .92. Results indicated that quadricep reflex time was significantly faster in the experimental group after the training program. Although there was a significant increase in quadricep muscle strength by the experimental group, there was no statistical relationship between muscle strength and reflex time, nor between a change in muscle strength and a change in reflex time.

180. GANSEL, Alice K. The effect of limited visibility in teaching beginning women bowlers spot bowling. M.A. in Physical Education, 1970. 81 p. (L. D. Morris)
The purpose was to determine whether the use of a vision-limiting teaching aid facilitated the learning of spot bowling, and if it did, which of 2 patterns of use was more effective. Ss were 33 college women classified as beginning bowlers. One control and 2 experimental groups were used, with the experimenal groups using the teaching aid intermittently for 5 and 8 games, respectively. ANOVA and t tests revealed that the use of goggles does not improve bowling ability as measured in this study, and the longer wearing period for the goggles was more beneficial to bowling success than the shorter period.

181. GLADER, Eugene A. A study of amateurism in sports. Ph.D. in Physical Education, 1970. 406 p. (D. R. Casady and J. M. Burdick)
The development of contemporary amateurism in sports began slowly during the early part of the 19th century, and became a major category in athletic competition during the second half of the century. The major purposes of amateurism as a category of sports have been to separate athletes on the basis of class or social position, athletes with various special

advantages, and athletes with diverse motives. Four of the main problems involve restrictions on the time which an athlete can spend in practice and competition, restrictions on the opportunity to capitalize on one's athletic ability, attempts to determine the motives of people who participate in athletics, and the inequality of opportunity within contemporary amateur sports. The major problem is the prevalence of hypocrisy and deceit. These problems arise partially from the fact that amateur sports organizations have defined amateurism with a "sport" emphasis, but are conducting and promoting competition with an "athletic" emphasis. The major proposal was that restrictions on time spent in practice and competition should be eliminated, and categories of competition be established on the basis of skill.

182. GRIFFITHS, Anne M. A cinematographic analysis of selected golf strokes. Ph.D. in Physical Education, 1970. 193 p. (N. P. Burke)
The drive and 5-iron shot of 10 college women were cinematographically studied to determine what specific movement patterns were necessary for the execution of a successful golf drive. Results obtained from selected measurements and tracings were compared among the Ss to identify the factors that appeared to be essential for a well-executed drive. Conclusions drawn were that the movement patterns were essentially the same for both clubs, and the golfer's ability to control clubhead movement was an influentical factor in attaining lift and distance. Greater distances were attained by Ss who had a relatively greater amount of shoulder turn than hip turn on the backswing, a greater amount of wrist cock just prior to contact, and a more "upright" swing plane, while golfers who "topped" the ball had a tendency to lift their arms in the hitting area.

183. HEAVERN, Phyllis Anne. Attitudes of the Sisters of Charity of Nazareth toward physical education and their relationship to leisure-time activities. Ph.D. in Physical Education, 1970. 246 p. (M. G. Scott)
The Sisters of Charity of Nazareth (SCN) were selected and all of the Sisters who were involved in education were sent an attitude questionnaire. Of those who were mailed the questionnaire, 528 (54%) responded. The questionnaire booklet was divided into 3 parts, which were devoted to acquiring background information, leisure-time activities, and an attitude questionnaire. The questionnaire was analyzed statistically using the chi-square test of independence. The leisure-time activities were reported by frequencies and percentages. The Likert technique was used for scoring the attitude questionnaire and correlations were computed using the total score and number of sports activities, as well as the total score and various background variables. None of the Sisters showed unfavorable attitudes toward PE. Activities which were participated in most frequently were those of a sedentary nature.

184. HIGGINS, Lynne P. Loop films for analysis of errors in volleyball. Ph.D. in Physical Education, 1970. 91 p. (M. G. Fox)
Fourteen cartridge Super 8mm loop films were developed as a teaching and/or testing device for error analysis in power volleyball, to be used in the professional preparation program of PE major students. The loop films included 4 loops of the correct execution of the set, bounce pass, serve, and spike, and 10 loops illustrating errors committed in the execu-

tion of these skills. A teaching manual which accompanies the film series includes a description and analysis of the skills and errors, including cause, results, application of kinesiological principles involved, and teaching cues, as well as testing procedures and a sample test form. The loop films and manual were evaluated by 33 PE teachers and major students. The evaluation indicated that the loop films and manual are an effective teaching aid and testing device for use in sports methods, kinesiology, and major volleyball classes.

185. LESLIE, David K. A study of factors which facilitate or inhibit adoption of innovative practices in boys physical education in secondary schools. Ph.D. in Physical Education, 1970. 228 p. (P. L. Reuschlein)

The aim was to determine factors which influence adoption of innovation practices (IP) in selected PE programs, to identify IP commonly used in PE programs, and investigate differences between levels of functioning of IP in PE and basic education (BE) programs. Data were obtained from 67 principals and 75 heads of PE departments at selected SHSs. Analysis of 46 influencing factors yielded significant differences between groups in PE programs for 5 factors. Nineteen of 26 IP were utilized significantly less frequently in PE than in BE programs. Analysis of levels of functioning of IP in the different groups in the different programs yielded only 7 significant differences. In general, no relationship appears to exist between levels of functioning of practices and levels of innovativeness of schools. Heads and principals tend to view the influence of the factors similarly, innovative practices tend to be under utilized in PE programs compared to BE programs, and once implemented, a practice tends to function equally well in all groups. Characteristics of staff, facilities, organization, and administration appear to influence levels of innovativeness in schools.

186. LIEMOHN, Wendell P. Strength development and aging: An exploratory study. Ph.D. in Physical Education, 1970. 151 p. (G. M. Asprey and H. L. Jacobs)

Fifty-two male Ss aged 42 to 83 were assigned to either an isometric training group (ITG), a control exercise group (CEG), or a control group. Data relative to the leg and arm strength scores of the ITG showed that there were no significant differences in strength trainability by age strata, or strength trainability by muscle group when the upper-extremity-strength ratios were compared with the lower-extremity-strength ratios. Analysis of initial and final strength scores revealed that the 4 age strata of the ITG gained in strength for 6 of the 8 strength measurements, and as age increased strength trainability appeared to decrease. Analysis relative to the scores on relative mean blood pressure and scores on the components of the Personal Adjustment half of the California Test of Personality resulted in 1 significant finding for the personality scores.

187. KANKAINEN, Tarja A. A concert of dance. M.A. in Physical Education, 1970. 46 p. (M. G. Fox)

The purpose was to demonstrate the ability to design a concert of dance, including solo and group works, and to show a variety in style, choice of music, subject matter, and length of dances. The concert consisted of 4 dances which varied in length from 3 min. to 15 min. and from one dancer to 14 dancers. "Joy, Rhythm, and Light Feet" was a gay, lively folk dance adaptation. "Whoops!" was a part of real life, telling a story humorously, with many facial expressions and lively movements. "In Vacuum" portrayed a person in a vacuum trying to get out of it. This abstract solo dance varied little dynamically, but the intensity was very important. The group composition, "Finnish Fantasies," depicted a story based on the Finnish national poem, "Kalevala," where slides were used in the background to give a realistic image of the life of people in Finland in older days.

188. KNIERIM, Helen Ann. An electromyographic investigation of the timing of reciprocal inhibition in selected joint actions. Ph.D. in Physical Education, 1970. 105 p. (M. G. Fox)
College women (N = 20) were divided into high and low groups as evaluated by their performance on the Scott Motor Ability Test. Action potential was recorded in the biceps brachii, triceps brachii, tibialis anterior, and gastrocnemius under 3 conditions: fast elbow and ankle movement, slow elbow and ankle movement, and an isometrically held position at each joint. A descriptive analysis revealed that the timing of reciprocal inhibition varied with types of movement. Motor ability groups differed in the timing of muscle activity in only a few movements, but showed marked differences in amplitude of pen deflection.

189. KOZAR, Bill. The effects of a supportive and nonsupportive audience upon learning a gross motor skill. Ph.D. in Physical Education, 1970. 118 p. (L. E. Smith)
Learning on a stabilometer by high and low anxious subjects was studied under the following conditions: alone, in the presence of a supportive audience, and in the presence of a nonsupportive audience. College males (N = 150) were selected on the basis of their MAS scores. High anxious Ss were randomly assigned to 3 groups of 25, as were low anxious Ss. The 3 high anxious and 3 low anxious groups were then assigned to either an alone, supportive audience, or nonsupportive audience condition. There was no difference in learning to balance on the stabilometer under any of the 3 conditions. Level of anxiety as measured by the MAS did not have a differential effect upon learning to balance on the stabilometer. The within-group changes showed that the high anxious groups and the low anxious group under the supportive audience condition improved in learning to balance. The within-group changes showed that the only group that reduced the number of errors was the low anxious group under the alone condition.

190. MOOD, Dale P. Test of physical fitness knowledge: Construction, administration, and norms. Ph.D. in Physical Education, 1970. 162 p. (D. Casady and L. Feldt)
The aim was to construct 2 parallel forms of a test designed to measure knowledge of physical fitness concepts, to provide evidence of the validity and reliability of the test, to provide normative data for scores achieved by undergraduate and graduate PE major students, and to investigate what experiences the examinees believe contributed most to their acquiring a knowledge of physical fitness concepts. Data used to evaluate the final test forms and to establish norms were obtained from the administration of the Test of Physical Fitness Knowledge to students from 152 collegiate institu-

tions; viz., 2,226 PE seniors, 399 PE freshmen, 314 PE masters candidates, and 331 non-PE seniors. Percentile ranks of the T-scores for the female and male members of each of 4 categories of examinees were constructed. The 4 categories included senior PE major students, freshman PE major students, graduate PE students, and senior non-PE students.

191. PALMER, A. Reaney. The effects of directed and undirected mental practice on the acquisition of a gymnastics skill. M.A. in Physical Education, 1971. 63 p. (M. G. Fox)

Ss were 47 SHS girls in 2 PE classes. A pretest, measuring arm strength and balance, revealed a significant difference in arm strength between the 2 groups. A method of mental practice, directed or undirected, was randomly assigned to each group. After 6 sessions, extended over a period of 3 wk., Ss attempted to perform the criterion skill, the ankle spin to the left on the uneven parallel bars, for the first time. There was no significant difference between the improvement of the 2 groups. A larger percentage of Ss in the undirected mental practice group were able to perform the criterion skill.

192. POLVINO, Geraldine J. The relative effectiveness of two methods of video-tape analysis in learning a selected sport skill. Ph.D. in Physical Education, 1970. 106 p. (M. G. Scott)

College women (N = 79) enrolled in 3 classes of beginning bowling were instructed using verbal cues and demonstration. Instruction in 2 experimental groups was supplemented with video-tape analysis. In addition, 1 of the experimental groups used illustrations of technique to guide in the analysis of performance. Analysis indicated that all groups showed significant improvement in bowling technique as measured by group averages and first ball totals. The methods employed in each of the 3 groups appeared to be equally effective in the acquisition of technique. There were no significant between-group differences at the end of each of 4 periods of recorded scores. The 2 experimental groups appeared to show similar learning patterns, which were continuous through the 4 periods.

193. PRICE, LaFerne Ellis. The wonder of motion--A sense of life for women. Ph.D. in Physical Education, 1970. 107 p. (M. G. Scott)

This study attempts to describe some of the emotions women experience in each of several sports and to explore the meaning of these emotions for today's woman. The material presents verbal images and artistic illustrations of women engaged in a variety of sport and dance activities. A woman exemplifies vitality and a "sense of life" certain of her own worth; force and effort are generated; balance and poise are achieved; rhythm and grace are expressed; emotions are captured in posture, gesture, and expression. Verbally and illustratively the study conveys something of the gamut of woman's conflicts and compromises--her reactions, adaptations, discoveries, ideas--in short, her life as lived in and among the sporting world of movement. Every woman finds her own meaning in her own way from her own sport. Therefore, this study about the feeling or meaning of sport experiences is not intended to preach, convert or to dogmatize, but rather to serve as a further stimulus for personal discoveries.

194. SLATTON, Yvonne L. The role of women in sport as depicted through advertising in selected magazines, 1900-1968. Ph.D. in Physical Education, 1970. 106 p. (M. G. Scott)

The purpose was to determine the changing role of women in sport with respect to cultural and sociological influences, as shown through advertising in selected magazines from 1900 through 1968. Selected issues of Good Housekeeping, Ladies' Home Journal, Saturday Evening Post, Look and Life were scrutinized for advertisements which depicted women in sport situations. Such advertisements were classifed according to sport used, product advertised, amount of space utilized, and nature of the advertisement. It was concluded that advertising reflects society's acceptance of women's "casual" participation in individual and dual sports, rather than her athletic competence.

195. SMITH, Grace R. The effects of using a training device on the off-season conditioning of a girls tennis squad. M.A. in Physical Education, 1970. 43 p. (M. G. Fox)

Ss were a SHS girls' tennis team, divided into 2 groups, 1 of which was called the Traditional Method, and the other the Device Method. The groups trained for 2 1/2 mo. with their original method, and at the end of this period were switched to the other method. Both groups participated in the tennis season which immediately followed the training period. Strength measurements were made for both groups on the forehand stroke, backhand stroke, serve, and leg strength. A t-test indicated significant gains in strength for both methods, depending whether one desired short-term gains, intermediate gains, or long-term gains in strength.

196. STRAND, Kenneth H. The effect of selected physical variables on pin fall for various head-pin hits in bowling. M.A. in Physical Education, 1970. 148 p. (D. R. Casady)

The 124 male Ss represented a hypothetical population of bowlers who were heterogeneous in bowling experience and ability. Data on over 2,000 observations each for 7 variables were analyzed. For first-ball head-pin hits for the hypothetical population of right-handed bowlers sampled, and for the specified grouping of the data, results revealed that for all head-pin hits and for 1-3 pocket hits, pin fall varies with ball velocity (slow balls appear to result in less pin fall than faster balls). All head-pin hits, slow balls result in less strikes than faster balls. In 1-2 pocket hits, slow balls result in more splits than fast balls. All head-pin hits, the right point of ball release results in greater pin fall than the left point of ball release.

197. VAN DER MERWE, Marina S. The effects of rhythmic exercises on body dimensions of freshman college women. M.A. in Physical Education, 1970. 87 p. (N. P. Burke)

College freshman women (N = 60) were randomly assigned to 2 groups. One group participated in a rhythmic exercise program for 2 hrs. a wk. over an 18-wk. period; the other group remained inactive. Five skinfold and 2 diameter measurements were recorded for each S. The exercise group showed significant skinfold changes at the abdominal triceps and knee sites. The difference between the scapula skinfold measurements was not statistically significant. The iliac diameter measurement registered a significant difference, while the trochanter width showed no statistically significant change.

198. ZIMMERMAN, Patricia A. The effect of selected visual aids on the learning of badminton skills by college women. Ph.D. in Physical Education, 1970. 158 p. (M. G. Scott)

Women PE majors (N = 41) enrolled in 2 badminton classes served as Ss. Both the control and experimental groups received the task method of instruction. However, in addition, members of the experimental group were able to view their own performance on videotape and the performance of experts on loop films. At the end of the instructional unit, selected badminton skills were measured by means of a battery of tests consisting of the French Short Serve Test and the French Clear Test. There were no significant differences between the means of the 2 groups for any of the skill tests. The task method of teaching with the addition of these visual aids was not superior to the task method without the visual aids.

199. ZINKGRAF, Mary A. Selected methods for improving vertical jumping ability of high school girls. M.A. in Physical Education, 1970. 43 p. (N. P. Burke)

SHS girls (N = 160) participated in a 6-wk. training program with sessions 3 times weekly. Four randomly selected groups were established (N = 40) and each group was assigned a practice method; thus the control group, the vertical jump group, the McCall's Rebounder group and the overhead apparatus group. Participants were pre- and post-tested using the jump-reach version of the vertical jump test. Pretest and posttest comparisons for each group indicated significant *t*'s for all groups. ANOVA applied to pretest, posttest, and gain scores showed a significant *F* for the gain scores. A *t*-test of the least significant difference signified that the greatest gain was made by the vertical jump group. Since all groups, including the control group, showed significant improvement in jumping ability, it was concluded that it was impossible to isolate the effect of the training methods from the effect of the concurrent jumping activities of the instructional unit in basketball.

## University of Kansas, Lawrence, Kansas (W. H. Osness)

200. CAMMON, Suzan E. Success in women's gymnastics as related to upper body strength and flexibility. M. S. in Physical Education, 1970. 124 p. (W. H. Osness)

201. CLARK, James H. Recovery heart rate response in wrestlers after actual competition. M.S. in Physical Education, 1969. 55 p. (W. H. Osness)

202. EVERS, Ann W. A study to determine the effectiveness of videotape and verbal information feedback methods in teaching the tennis serve. M.S. in Physical Education, 1969. 98 p. (W. H. Osness)

203. GRIMES, William E. The effects of various ambient temperatures, relative humidities and exercise levels on the inter-character distances in the electrocardiogram of young males. M.S. in Physical Education, 1970. 121 p. (W. H. Osness)

204. Haire, Daniel A. An evaluation of a visual-motor training program using concentration devices. M.S. in Physical Education, 1970. 73 p. (B. R. Carlson)

205. HAMMERSMITH, Veronica A. An evaluation of cardiac activity in young women as spectators and participants in competitive basketball. M.S. in Physical Education, 1969. 84 p. (W. H. Osness)

206. HARPER, Robert D. Adaptation of oxygen utilization to changes in ambient temperature and ambient humidity at varied exercise levels. M.S. in Physical Education, 1970. 89 p. (W. H. Osness)

207. HARRELL, Thomas W. The effects of dextra amphetamine sulfate on reaction time. M.S. in Physical Education, 1969. 59 p. (W. H. Osness)

208. HARRISON, Jane. The evaluation of the women's intramural program at Ritenour Senior High School. M.S. in Physical Education, 1969. 104 p. (W. H. Osness)

209. KOREK, Joan Pelikan. Isometric strength and relative isometric endurance in college women. M.S. in Physical Education, 1970. 72 p. (B. R. Carlson)

210. MATTINGLY, Ned A. A comparison of the effect of four types of warm-ups on 100-yard dash performance. M.S. in Physical Education, 1970. 48 p. (W. H. Osness)

211. MOORE, Susan M. Personality traits of physically active, moderately active, and inactive college women. M.S. in Physical Education, 1969. 98 p. (W. H. Osness)

212. NEWTON, Grundy E. A study of age, height, weight, and somatotyping in relationship to AAHPER Fitness Test. M.S. in Physical Education, 1969. 85 p. (W. H. Osness)

213. PETERSEN, Donald C. A comparative application of the 16-inch foot spread to the rocket sprint start. M.S. in Physical Education, 1969. 40 p. (W. H. Osness)

214. PINE, Marvin E. A comparison of fitness and attitudes of children taught by a specialist and by classroom teachers. M.S. in Physical Education, 1969. 54 p. (W. H. Osness)

215. REPLOGLE, Max C. The influence of the distribution of the force exerted on starting blocks in relation to the time required to run 10 yards. M.S. in Physical Education, 1969. 39 p. (W. H. Osness)

216. SHARICK, Merle D. A comparison of certain aspects of successful football programs in selected Kansas high schools. M.S. in Physical Education, 1970. 58 p. (H. A. Shenk)

217. SIMONS, Jeffrey C. A comparison of changes in explosive power and horsepower between a basketball trained group and a physical education trained group. M.S. in Physical Education, 1969. 44 p. (W. H. Osness)

218. SPENCER, William M. A study of the academic preparation of Kansas University varsity lettermen. M.S. in Physical Education, 1970. 39 p. (W. H. Osness)

219. URBAN, Richard J. Football knee injuries in selected high schools in the State of Kansas. M.S. in Physical Education, 1969. 42 p. (W. H. Osness)

220. WALKER, Darlene A. The effects of coeducation on the physical education program at Paseo High School. M.S. in Physical Education, 1970. 114 p. (W. H. Osness)

221. WARD, Oren A. The effects of various ambient temperatures, relative humidities, and work loads on the cardiac rate of young males. M.S. in Physical Education, 1970. 125 p. (W. H. Osness)

222. WILLIAMS, Ruth M. A study of the physical activity of adolescent girls under varying nutritive conditions. M.S. in Physical Education, 1969. 113 p. (W. H. Osness)

223. WISNER, Frances L. A study of two types of warm-up activities for a junior high school girls' physical education program. M.S. in Physical Education, 1969. 90 p. (W. H. Osness)

## **Lamar State College of Technology, Beaumont, Texas** (M. J. Haskins)

224. FARROW, Bernice E. Development of a volleyball selection test battery. M.S. in Health and Physical Education, 1970. 73 p. (M. J. Haskins)

The best selection of volleyball players to comprise the most potentially successful team within a short span of time was studied. The purpose was to construct a test battery for use in selection of varsity team members. Seven tests were administered to all girls participating in Texas Interscholastic League volleyball at 5 SHSs. The criterion was based on whether or not a girl was chosen by her coach as a varsity team member. Four test items comprised the final battery according to beta weights.

225. ELLEDGE, Mary. The history of girls' basketball in Texas. M.S. in Health and Physical Education, 1969. 107 p. (M. J. Haskins)

**Louisiana State University, Baton Rouge, Louisiana** (J. K. Nelson)

226. BARRA, Ronnie G. Energy expenditure of different exercises performed with uniform resistance. Ed.D. in Physical Education, 1970. 61 p. (F. A. Drury)

Male college Ss ($N = 30$) performed the curl, military press, and shrug exercises using 75 lb. static resistance. Energy expenditure was determined by net $O_2$ consumption, measured by the open-circuit indirect method, during the 5 min. immediately following each exercise. Exercise in the curl position resulted in the greatest energy expenditure ($P < .01$) of the 3 exercises, and energy expenditure in the press position was greater ($P < .01$) than in the shrug position. Low and inconsistent r's were found between energy expenditure and body weight in the 3 exercises.

227. CAMPANELLA, Lydia A. The Human Seasons: An original choreographic work based on the poem, "The Human Seasons," by John Keats. M.S. in Dance, 1970. 108 p. (M. M. Lappe)

The suite of dances consisted of 4 parts: spring, summer, autumn, and winter. Mood for each dance was set by the lines of the poem. The dances were composed, taught, rehearsed, and staged by the investigator. It was concluded that a choreographic work should exemplify creativity and should be supported by research. Further, in order for a dance to exist as an art form it must reflect definite form, creativity, a high level of skill, enrichment qualities, and communication.

228. CAVALIER, Edward J. Effects of strength and speed training on power in the projection of light and heavy objects. Ph.D. in Physical Education, 1970. 111 p. (J. K. Nelson)

Ninety Ss were assigned to 6 groups. One group practiced simulated underhand throwing; one group performed actual throwing; 2 groups practiced simulated throwing against 5- and 10-lb. resistance; and 2 groups simulated throwing with 5- and 10-lb. resistance in addition to throwing. Ss practiced 3 days a wk. for 5 wks. and were given pre- and post-training tests of throwing velocity and endurance with a softball and a weighted ball. Strength tests were also given. Simulating throwing against resistance or throwing with or without supplementary simulated throws against resistence brought about significant improvements in velocity and endurance in throwing light and heavy objects. Although actual throwing was more effective than simulated throwing alone, simulated throwing against resistance was as effective as throwing with and without supplementary strength training in improving throwing velocity.

229. DUGAS, Edmond A. The influence of observers of the same race and a racially mixed audience on level of aspiration and gross motor performance of college males. Ed.D. in Physical Education, 1970. 83 p. (M. L. Life)

Caucasian ($N = 57$) and Negro ($N = 57$) male college students performed a test of striking power and the bar hang. After each performance trial, S indicated his expected score for the next performance. Aspiration discrepancy scores were derived using the second performance and second aspiration scores. Experimental conditions involved performing in the presence of observers and a tester of the Ss' own race and in the presence of a racially mixed audience and testers of both races. ANOVA revealed no significant differences in performance or level of aspiration between the experimental conditions. For all Ss, a high positive r was found between performance ability and level of aspiration.

230. FISHER, David H. Effects of two different types of physical education programs upon skills development and academic readiness of kindergarten children. Ph.D. in Physical Education, 1970. 122 p. (H. E. Fant)

Ss (N = 62) were assigned to 2 groups, both of which received the same academic program. One group participated in a traditional program consisting of free play and games, while the other group participated in a sequential, individualized program of perceptual-motor activities. Both groups spent about 20 min. a day, 5 days/wk. for 22 wks. in their respective programs. A general intelligence test, a general readiness test, and a maze-type motor ability test were given prior to and following the experimental period. ANCOVA indicated that both groups made significant gains in all measures. No significant differences were found between the 2 programs with regard to the amount of improvement made on the different tests. The relationships between motor ability and intelligence, and motor ability and readiness were not significant.

231. GEORGE, Gerald S. A cinematographic and comparative analysis of national class gymnasts performing selected skills on the horizontal bar. Ph.D. in Physical Education, 1970. 139 p. (F. A. Drury)

Four selected national class gymnasts were photographed while performing the Undergrip Giant Swing, the Inlocated Undergrip Giant Swing, the Overgrip Giant Swing, and the Inlocated Overgrip Giant Swing. Graphical analyses and computations were made concerning the center of gravity relative to radius of rotation, centripetal force, angular velocity, and angular acceleration. Highly skilled performers utilized similar and often identical movement patterns. The shortening of the radius of rotation in order to increase angular velocity was accomplished in every instance by changes in the shoulder and hip articulations. Neither a specific amount of rotation nor a specific point within the swings at which the actual shortening of the radius of rotation occurred could be determined.

232. GREENLEAF, Dorothy W. A study of venereal disease knowledge held by selected university and college students in Louisiana. M.S. in Health Education, 1970. 116 p. (E. G. Clark)

College students (N = 217) were administered a 75-item Venereal Disease Knowledge Test. An accompanying questionnaire was utilized to collect background data. Among the findings were that Ss in this study were better informed than Ss in a study conducted a few years ago, but the misconceptions and areas showing a decided lack of knowledge remained essentially the same. Ss from the small denominational college were better informed than Ss from a large university. Sex, state of residency, religion, type of SHS, and level of parents' education did not seem to have an influence on the amount of knowledge exhibited. The majority of Ss indicated that the school was the preferred source for receiving information concerning venereal disease.

233. JOHNSON, James H. A comparison of continuous slow running, interval, and pace training methods on running performance. Ph.D. in Physical Education, 1970. 92 p. (F. A. Drury)

College freshman men (N = 120) were tested before and after an 8-wk. training program on treadmill tests at 10 mph and 8 1/2 mph, and on a mile run. Ss were placed into 3 training groups: Group 1 trained at a relatively slow, continuous running pace for 20 min. each session and progressed to 30 min.; Group 2 utilized both fast and slow interval training; Group 3 trained at a predetermined steady pace calculated to run a mile in a given time. All Ss trained once a day, 3 times per wk. All training groups significantly improved performance on all running tests. Slow continuous running was superior in improving performance in slow speed running. Pace training was concluded to be highly effective in improving performance and from a psychological point of view.

234. MOORE, Ballard J. Evaluation of a pictorial form of instructional aid in the teaching of a motor skill. Ed.D. in Physical Education, 1970. 122 p. (J. K. Nelson)
This study consisted of two phases. In one, 96 7th, 8th, and 11th grade students and 82 college students served as Ss. Half of the Ss were taught the fundamentals of tennis utilizing cartoon illustrations as an instructional aid, and the other half by the traditional manner. The second phase of the study involved an evaluation of the cartoon booklet by teachers (N = 26) and 671 students at the secondary and college levels. It was found that although the cartoon illustrations did not result in the acquisition of a greater degree of knowledge, as measured by a written test, they were considered to be a valuable aid in class preparation in teaching and in supplementing instruction. While this instructional aid was generally well received by the students at both the secondary and college levels, females tended to be more receptive than males and secondary students more so than college students.

235. PARCHMAN, Linda L. Cinematographical and mechanical analysis of the golf swing of female golfers. Ed.D. in Physical Education, 1970. 162 p. (F. A. Drury)
Four women amateur golfers who were former state and regional champions were photographed from the side, front, and overhead. A descriptive analysis was made of the body segment movements, and the contributions of each segment to the linear velocity of the clubhead were computed. There was a lack of uniformity relative to wrist angle at address, during the backswing and downswing. For all Ss the wrists had begun to uncock in the down swing by the time the left arm was horizontal to the ground. While the wrist level was the major contributor to linear velocity of the clubhead for all Ss, spinal rotation was shown to contribute more to linear velocity than was reported in the literature.

236. PATTERSON, Malcolm L. A comparison of two methods of training on the improvement of general motor ability performance. Ed.D. in Physical Education, 1970. 99 p. (J. K. Nelson)
Male college students (N = 115) were tested on the Barrow Motor Ability Test for College Men and the Harvard Step Test before and after an 8-wk. training program. All Ss participated 3 days/wk. in regular PE soccer classes. One group engaged in a target training program the last 5 min. of each class; a second group performed isometric exercises. A control group was also employed. It was found that motor ability can be improved through vigorous physical activity such as in a PE soccer class. The addition of 5 min. of supplementary exercises did not result in additional improvements in motor ability. Harvard Step Test performance was significantly improved by the Target Training group but not the isometric or control group.

237. POOLE, James R. A cinematographic analysis of the upper extremity movements of world class players executing two basic badminton strokes. Ed.D. in Physical Education, 1970. 86 p. (F. A. Drury)
Four badminton players, each of whom was then ranked as the number 1 player in his respective country, were photographed from the front and side positions while executing the forehand smash and backhand clear. The angles between the segments of the upper extremity were measured to compute angular velocities, which in turn were converted to linear velocities. Wrist action was found to be the most important contributor to the force of both strokes. All Ss extended their arm and elbow above the head in executing the strokes, but only 1 S used the arm to achieve any significant contribution to the velocity.

238. SLEVIN, Robert L. The influence of trait and state anxiety upon the performance of a novel gross motor task under conditions of competition and audience. Ed.D. in Physical Education, 1970. 119 p. (J. K. Nelson)
High-trait anxious SHS boys (N = 40) and low-trait anxious boys (N = 40) were selected on the basis of the STAI A-TRAIT Anxiety scale. Each S then performed a modified fencing lunge and recovery task for speed and accuracy under 4 conditions: competition-no audience; competition with audience; audience-no competition; and no audience-no competition. State anxiety was measured prior to each testing condition. A 2X2 split-plot ANOVA was used to compare performance and state anxiety scores under the 4 conditions. Overall, the high-trait anxiety Ss had significantly higher state-anxiety scores and significantly lower performance scores than the low-trait anxiety Ss. Performance without an audience produced higher state anxiety than performance with an audience. Competition resulted in better performance but did not produce higher state anxiety scores.

**Mankato State College, Mankato, Minnesota** **(R. B. Moore)**

239. GREGORY, John Douglas. The relationship of the twelve-minute run to maximal oxygen intake. (R. D. Gorman)
Ss (N = 20) were randomly selected to take the 12-min. run first whereas, other Ss (N = 20) took the maximal oxygen intake test first. Within 2 to 4 days, Ss rotated and were given the opposite test. Analysis revealed an r of .66 between maximal oxygen intake and the distance covered in the 12-min. run. The relationship was not sufficient to allow the run to be substituted for the maximal oxygen intake test.

**University of Massachusetts, Amherst, Mass.** **(H. K. Campney)**

240. ALLARD, Ronald J. Sport: Tyranny of the mind. M.S. in Physical Education, 1970. 96 p. (H. J. VanderZwaag)
A theory was developed to explain the wide range of natural, nonartificial, nonlaboratory facts of sport, such as competition and cooperation, work and play, professional and amateur, rules of the game, and sportsmanship.

Since human existence consists of an element of spontaneity as well as an element of control, of subjectivity as well as objectivity, emotion as well as reason, then a true, productive theory can only be one that covers both of these elements. Through a theory of balance, then, an attempt was made to explain why institutionalized or professional sport seems to be primarily a matter of work and pain rather than one of play and pleasure. It was found that this is so because it is competitive rather than cooperative, and that this in turn is due to one's attitude concerning the matter of life and death. The painful competition between 2 sides in sport is but a reflection of the painful competition between life and death in existence, from which it follows that in order to make sport cooperative and pleasureful, a cooperative relationship must first be achieved between life and death.

241. BLUHM, Jeanene R. The relationship of selected motor skills, visual form perception and right-left awareness to academic achievement of first grade school children. M.S. in Physical Education, 1970. 112 p. (W. Kroll)

First grade students (N = 130) were tested for 9 months. Motor abilities tested were balance, agility, and synkinesis. Cognitive tests included the Winter Haven Lion's Club Perceptual Achievement Forms Test, the Piaget Test of Right-Left Awareness, the de Hirsch Readiness Test, the Metropolitan Readiness Test, the Metropolitan Achievement Test, and the Stanford Achievement Test. Stepwise regression analyses were computed to determine the various multilinear regression equations to predict the characteristics involved in the study. It was concluded that balance, synkinesis, visual form perception, and right-left awareness all share important relationships with academic readiness and achievement. A subanalysis exposed the inefficiency of the de Hirsch Readiness Test and questioned the test's ability to predict achievement. Similar subanalyses substantiated the usefulness and validity of the Perceptual Achievement Forms Test and the Piaget Right-Left Awareness Test.

242. CHAMPION, Carolyn P. A study of the relationship of body weight, salivary sodium and potassium concentrations, and lower body edema to the menstrual cycle and the effectiveness of selected exercises in the relief of premenstrual tension. M.S. in Physical Education, 1970. 46 p. (B. Ricci)

Ss (N = 13) recorded their weight on a daily basis, collected 5 ml of unstimulated saliva twice weekly, and were measured for volumetric displacement at 3 times during the menstrual cycle. An exercise program was chosen in accordance with the utilization of gravitational pull and muscle pumping for redistribution of fluid. Statistical analysis included 1-way ANOVA with repeated measures, multiple correlations, and modified 5-scores. It was concluded that weight changes during the cycle are due to factors other than lower body edema; there is no statistically significant ($P > .05$) variation of salivary potassium concentration during the cycle; there is a significant variation of salivary sodium concentration during the menstrual cycle; and there is only a slight association between sodium concentration and water retention.

243. CLARK, Kathy D. The postural mean blood pressure index as a predictor of cardiovascular fitness of college women. M.S. in Physical Education, 1970. 67 p. (B. Ricci)

Sixty female college student volunteers grouped in 3 categories, PE majors, nonmajors, and those with a history of minor cardiovascular system irregularities were required to complete the Harvard Step Test (HST) and the Postural Mean Blood Pressure Index (PMBPI) developed by cardiologist A. S. Hyman. The purpose was to determine if the PMBPI scores could accurately reflect the cardiovascular fitness levels on the HST. An electrosphygmomanometer was employed for the determination of S's blood pressure for the PMBPI and a telemetry unit was employed to monitor the HST recovery heart rate to reduce the element of human error. Through the use of correlations, ANOVAs to test for the significance of the differences in subgroup means on the HST and PMBPI, and linear regression analysis, analysis of the data indicated that the mere simplicity of the PMBPI should not dictate its use when accurate predictions of cardiovascular fitness are desired. Because of the low correlation values between the HST and PMBPI and to the large error of estimate in predicting HST scores from PMBPI values, the credibility of the PMBPI as a discriminating predictor of cardiovascular fitness of college women appears questionable.

244. HAMILTON, Penelope A. A mechanical analysis and comparison of two jump shots performed by a female basketball player. M.S. in Physical Education, 1970. 80 p. (B. Ricci)

Cinematographic whole body analysis combining the use of 2 computer programs yielded velocity, acceleration and deceleration of each moving segment, the contribution of each segment to the total body movement, the moments of force at each joint, and the movement of the total body center of gravity was made on 1 female S. The path of the ear was traced through 9 of the jump shots filmed in order to determine the time of ball release in relation to the jump. Two jump shots each from 15 ft. and 9 ft. were performed. The magnitude of the acceleration and deceleration of the jump shot from 15 ft. was always greater, and changes occurred more abruptly. The magnitude of the moments of force was also therefore greater in order to create a greater ball velocity. Release of the ball occurred before the height of the jump in the jump shot from 15 ft. At the closer distance of 9 ft., arm action was begun later, and therefore release occurred later. The measurement errors connected with a study of this type were also discussed.

245. HYDE, William J. The Round Hill School, 1823 to 1834: An early experiment in American physical education. M.S. in Physical Education, 1970. 135 p. (G. M. Lewis)

Until Joseph Cogswell and George Bancroft founded the Round Hill School at Northampton, Massachusetts, in 1823, PE had not been accorded a place in U.S. schools. Their ambitious plan to introduce the subject was fully realized after Charles Beck patterned his program after the one developed by Jahn. However, before Beck joined the Round Hill faculty the boys derived great pleasure from participation in an informal program conducted by Cogswell. Shortly after institution of the successful program at the Round Hill School, several institutions also introduced PE. Some were directly influenced by the example of Round Hill and others adopted Jahn gymnastics or a modified version of it. About 1830 interest waned and there were no more adoptions. A revival came in the 1860s, but it could not be stated with any degree of certainty that the Round Hill experiment, admirable though it was, contributed to American physical education practices. It heralded a promising beginning for school and college PE, but it failed to achieve the recognition it deserved.

246. JOHANSON, Norman W. Determination of resistance load for six repetitions maximum for biceps strength development. M.S. in Physical Education, 1970. 82 p. (W. Kroll)

Two groups of Ss (N = 26) were tested for maximum isometric strength and maximum isotonic strength for the elbow flexors. The first group, which was divided into 5 subgroups, performed as many repetitions of the 2-arm biceps curl at 30%, 45%, 60%, 75%, and 90% of their maximum isotonic strength, where maximum isotonic strength was represented by a 1-RM. The preceding percentages were balanced in order of presentation through the use of a Latin square design and performed on 5 successive days using a different percentage each day. Results indicated that for the desired set of 6 repetitions maximum, a load of 85% of maximum isotonic strength was needed. The second group was then used as a cross validation group to test the load-endurance relationships established for prediction of a 6 rep. maximum performance on the 2-arm biceps curl. Results from the cross-validation study showed that an average of 5.92 repetitions maximum were performed at 85% of maximum isotonic strength.

247. LOWE, Robert W. The effect of arm action upon oxygen uptake during treadmill running. M.S. in Physical Education, 1970. 37 p. (B. Ricci)

Ss (N = 6) used their arms naturally one day and then relaxed them at their sides the next while exercising on a motor driven treadmill. The treadmill was set at 10km/hr. and a 5% grade. Exercise bouts of 4 and 6 min. were used to determine if the length of the run affected the oxygen uptake. With the open circuit method of indirect calorimetry, data were collected over a 4-wk. period. $O_2$ and $CO_2$ content were recorded and used to compute the average oxygen uptake for each exercise bout. ANOVA, with a factorial arrangement of treatments, yielded a nonsignificant difference ($P > .05$) when testing the effect of arms, periods, and Ss upon oxygen uptake. A significant difference resulted when testing the effect of times and the interaction of arms and periods. All other interactions resulted in nonsignificance.

248. ROCKLAND, Edward. An investigation of the United States participation in Olympic basketball. M.S. in Physical Education, 1970. 149 p. (E. W. Gerber)

The participation of the U.S. in the Olympic basketball program was investigated for the years 1936 to 1968. Circumstances surrounding the inclusion of basketball in the Olympic program were detailed. Data relative to participation included study of selection procedures, team members, training methods, tournament data, and the relationship between collegiate and international playing rules. Changes in each of these areas, as well as stable aspects, were analyzed and interpreted.

249. RUSSO, T. Michael. A kinematic and kinetic analysis of the soccer instep kick. M.S. in Physical Education, 1970. 76 p. (S. Plagenhoef)
The method devised by Plagenhoef was used to make a kinetic analysis of the soccer instep kick taken with the left foot and without an opponent harassing S, and with the right foot and with opposition. These 2 conditions were chosen to substantiate or refute present description of the instep kick. It was found that the proper deceleration and acceleration of each segment in sequence produced maximum velocity of the kicking foot just prior to impact. The nonkicking leg in both kicks set the body for impact, and after impact assisted in slowing the movement. The primary function of the trunk in both kicks was to initiate the forward movement of the kicking leg. In both kicks the hip flexors and knee extensors of the kicking leg were dominant as the kicking shank began its forward movement and just prior to impact. When S was opposed and kicking with his right foot, his center of gravity was located out in front of his nonkicking foot at impact. Because he was leaning forward at impact, his follow-through was shorter, as the kicking leg was returned quickly to the ground to maintain balance. The rigidity of the kicking foot and the velocity of that foot are the two variables involved in producing ball velocity. In this study foot rigidity was important, but the velocity of the kicking foot was found to be the more important variable.

250. SMITH, Michael A. The adoption of rugby as the basis for the game of intercollegiate football. M.S. in Physical Education, 1970. 100 p. (G. M. Lewis)
Literature reviewed indicated that Harvard's role in the adoption of rugby, as the basis for intercollegiate football competition, was not fully understood. Football had been known in North America in the 17th century, but it was not until the latter part of the 19th century that intercollegiate competition began. In 1873 it appeared that the game agreed to by Yale, Princeton, and Rutgers might become established in Eastern American colleges. However, Harvard's attitude and action, firstly in refusing to agree to the playing rules of 1873, and secondly in accepting the game of rugby, after contests with McGill University of Canada in 1874, were foremost reasons for the adoption of rugby, by the Intercollegiate Football Association of 1876, as the basis for future intercollegiate football competition.

251. WEBBER, James C. A comparison of social desirability and achievement motivation as measured by Q technique. M.S. in Physical Education, 1970. 102 p. (P. Berlin)
University of Massachusetts varsity athletes (N =42), engaged in crew and lacrosse, participated in 2 administrations of the Plummer Q-sort for Achievement Motivation; statements were ranked in a "self-likeness" context in one treatment and a "social desirability" context in the other. Mean scores for each statement were calculated and then compared using the Wilcoxon matched pairs-sign rank test. The general notion that social desirability is a variable that pervades self-inventories was supported. Further, each statement was assigned to a category which purportedly represented its meaning. Categories included self-regard, expression, social interactions, mastery, and prestige. Differences between the achievement motivation sort scores and the social desirability sort scores as revealed by the Wilcoxon test were not statistically significant when meanings served as the basis for comparison.

**Michigan State University, East Lansing, Michigan** (R. N. Singer)

252. REILLY, Jean Ann T. A comparison of instructional emphasis of speed, accuracy, and speed and accuracy upon the performance of the beginning fencer. M.A. in Physical Education, 1970. 65 p. (R. N. Singer)

This study was designed to discover which instructional method--speed, accuracy, or speed and accuracy--should be used during the initial stages of skill acquisition to produce the most successful fencer. Sixty female college students in 3 beginning fencing classes served as Ss with each class receiving different instructional emphasis. A solid state testing apparatus was designed to measure 2 response time measures and an accuracy score. A significant difference was found in favor of the speed group, speed and accuracy group, and the accuracy group, respectively, on the response time measures. A fencing tournament was held to determine which instructional emphasis produced the most successful fencer. Four criteria were set up to evaluate fencing performance. Results showed no significant difference between the performance of the 3 groups. A correlation matrix showed no relationship between the skills tests and the fencing bouts.

**University of Minnesota, Minneapolis, Minnesota** (M. U. Wilson and J. F. Alexander)

253. ANDERSON, Jean P. An electromyographic study of ballistic movement in the tennis forehand drive. Ph.D. in Education, 1970. 126 p. (M. U. Wilson)

Data were obtained from 9 women, 3 of whom were assigned to each of 3 skill levels: beginner, average, and highly skilled. Each S executed 5 trials for each of 8 muscles tested, giving a total of 40 trials. Simultaneous electromyographic and cinematographic records of each trial were analyzed for evidence of decreased muscular activity prior to ball contact and determination of velocity for forward arm swing. Decrease in muscular activity was determined by calculating the slope of the line of decrease in activity. There is consistency of muscle activity in average and highly skilled Ss, indicating a well-developed stroke pattern. Between skill levels and Ss, there is a great variation in muscle activity precluding any overall analysis of muscle involvement. Ballistic movement as defined does not appear in the tennis forehand drive. Efficiency of the more skilled players results from a decrease in muscular activity rather than a complete absence of muscular tension. There does not appear to be a direct relationship between increased velocity and greater decrease in muscular activity. Slope of the line of decrease in muscle action potential provides a quantitative measure for the evaluation of the electromyogram.

254. BROWN, Harry J. Reaction time and movement time as related to silent and oral reading rate. Ph.D. in Education, 1970. 180 p. (J. F. Alexander and M. U. Wilson)

Seventh grade males (N = 120) were tested for silent reading rate using the Gates-McGinitie Survey of Silent Reading and for oral reading rate using the Gray Oral Paragraphs. Ss were grouped and designated as fast, average speed, and slow readers on each reading measure. Simple and discriminatory RT and MT variables (auditory, visual, tactile) were measured by a multisensory device constructed for this purpose. Low correlations between RT and MT appear to substantiate the dichotomy of RT and MT. A strong positive correlation was obtained between oral and silent reading rate. Clear differences between the 3 reading rate groups were found on MT variables, and profound differences between the fast and slow groups were also found in both RT and MT. Reading rate appeared to be a function of some measurable physiological characteristic.

255. KORRI, Lea J. Instructional problems encountered by women physical education teachers and their relation to teaching competency as expressed by physical education majors in Minnesota. Ph.D. in Education, 1970. 165 p. (E. M. Jaeger)
Check lists were utilized to obtain information concerning the instructional problems women physical education teachers encountered and also to determine senior major students' competency to handle the problems. Teachers' responses (208) were ranked on the basis of frequency and importance, and student responses (75) were ranked on the basis of expressed competency. Findings indicated that many instructional problems teachers were encountering in the public schools occurred because of limited and/or inadequate facilities, large classes, providing for individual differences, motivation, and providing for the needs and interests and abilities of the students. Programs and facilities for handicapped students appeared inadequate in the schools. Women PE majors apparently felt adequate to handle organizational problems and those concerning personal relationships, but they expressed inadequacy with regard to providing PE for handicapped students and problems relating to limited or inadequate facilities.

256. NELSON, Emogene A. Value patterns of physical educators in colleges and universities of the United States. Ph.D. in Education, 1970. 211 p. (E. M. Jaeger)
The value patterns of men and women who teach PE, as well as those of senior students, were examined through use of the Allport, Vernon, Lindzey Study of Values and by A Values Profile In Physical Education, which was developed as a part of this study. Significant differences appeared between group means of men and women teachers on the Allport, Vernon, Lindzey scale, with men placing higher value on theoretical, economic, and political concerns, while women emphasized the aesthetic. Comparison of group means on the PE scale showed general agreement with these differences; however, women teachers scored significantly higher than men teachers on the theoretical variable of the latter scale. Male students agreed with male teachers, but female students showed major differences from female teachers in decisions related to their profession.

257. PLACK, Jeralyn J. An evaluation of the Purdue Perceptual Motor Survey as a predictor of selected academic and motor skills. Ph.D. in Education, 1970. 108 p. (M. U. Wilson)
The Purdue Perceptual Motor Survey, throw and catch and zig-zag run tests from the Johnson Battery, and a forward skip test from Loechler's modification of the Johnson Motor Ability Test were administered to all (N = 120) fourth grade school children in a small town. Nine academic

achievement measures were selected from the Stanford Achievement Battery: grammar, punctuation and capitalization, spelling, total language, reading comprehension, reading vocabulary, total reading, modern math understanding, and an academic composite. The sample was randomly divided in half so that a step-wise regression could be computed for 1 group and the resulting regression equations could be validated using the other group. Subsequently the sample was recombined and divided by sex (57 girls, 63 boys) to determine sex differences in prediction. Almost all correlations between the above academic achievement variables (also, some motor achievement variables) and the Purdue Survey were significant ($P < .05$). Distinct sex differences existed when the Purdue Survey is used as a predictor of these academic and motor skills. Cross-validation procedures indicated that the regression equations from the original sample were valid.

258. WEINGARTEN, Gilad. Effects of cardiorespiratory condition increase upon mental performance under physiological stress and on personality structure. Ph.D. in Education, 1970. 153 p. (J. F. Alexander)
From performances based on the medians of the pre-$MVO_2$ test and mental performance under physiological stress, 30 patrol officer candidates were assigned to 4 combination cells (high to low) and randomly assigned to either an experimental or control group. The pre- and post-tests consisted of cardiorespiratory fitness ($MVO_2$), mental performance under physiological stress, continuous treadmill walk, and 2 personality inventories (PRF and ACL). Between the pre- and post-test administration (6 wks.) and in addition to the typical training program, the experimental group engaged in a daily vigorous fitness running program, while the control group remained relatively sedentary. The experimental group was significantly ($P < .05$) higher in cardiorespiratory condition, efficiency in submaximal work, mental performance under stress, on the ACL-Heterosexuality scale, and lower on the PRF Impulsivity scale. The pre-post within-group analysis indicated that the experimental group improved ($P < .001$) its $MVO_2$ and did not drop on mental performance, whereas the control group did not improve its $MVO_2$ but scored lower ($P < .001$) on the post-mental test.

259. WICKS, Gary G. Effects of learning on maximal grip strength measures. M.A. in Physical Education, 1969. 75 p. (J. F. Alexander)
Male college students ($N = 50$) were randomly assigned to 2 treatment groups with visual stimulus and without such stimulus, where visual stimulus referred to a mirror reflection of scores on a recorder. Maximal grip strength measures were taken on an adjustable grip dynamometer and strain gauge, 5 trials per session with 4 testing sessions. Treatment group comparisons made by a 1-way ANOVA produced no differences due to visual and nonvisual stimuli for any combination of trial or session. However there were differences ($P < .05$) between the 4 session means, indicating a learning effect independent of treatment. A maximal grip strength measure can be achieved by the third trial of a testing session and most learning appears to occur during the first 3 sessions.

## University of Montana, Missoula, Montana (B. J. Sharkey)

260. DOCKTOR, Robert L. The effect of exercise and training on VMA excretion. M.S. in Physical Education, 1970. 69 p. (B. J. Sharkey)
Five nonathletic Ss underwent progressive training on the treadmill for 5 weeks. Vanilmandelic acid (VMA) was measured from 3-hr. post-exercise urine samples for the estimation of urinary catecholamine excretion. Perceived exertion was measured with the aid of a rating scale devised by Borg. Training seemed to reduce VMA response to the exercise and the subjective effort ratings.

## New York University, New York, New York (R. A. Weiss)

261. BERRYMAN, Doris L. A method of evaluating recreation services for disabled children and youth in institutional treatment settings. Ph.D., 1970. 105 p. (E. L. Ball)
Standards and evaluative criteria were developed and validated with the assistance of a jury of experts and 50 additional highly qualified practitioners and educators in therapeutic recreation. Reliability coefficients for the rating instrument ranged from .937 to .998. A team of 3 raters visited 18 institutions twice at 10- to 12-month intervals. Comparative data were available for 13 of the 18 institutions. The significance of increased scores on the second visit for these 13 institutions was determined by computing t ratios, all of which were significant ($P < .05$). Eleven of the 13 (85%) stated they had made efforts to improve their ratings in 2 or more categories. The fact that such a high percentage of institutions utilized the results of the first visit to improve their ratings, along with the significantly higher scores found on the second visit, strongly support the hypothesis that institutions, after participating in a self-evaluation based on outside standards, would attempt to come closer to meeting the standards.

262. DARDEN, Joseph S., Jr. A study of placement of sex education in the curricula of selected high schools in Georgia. Ed.D., 1963. 223 p. (H. F. Kilander)
The writings of 15 authorities were utilized to support or discard the content of "An Outline of Major Topics for Family Life Education," by Kilander, in order to determine the content of sex education in SHSs. Also investigated (by means of the literature and interviews) were the need for sex education and the means whereby the curriculum could be altered to include sex education. The resultant list of topics, fashioned into a questionnaire, was sent to over 600 SHS teachers in Georgia to determine whether these topics were a part of various courses. Results showed that sex education would include 59 topics mainly distributed over 30 units in the subjects of Biology, English, Health, Home Economics, PE, and Social Studies. Eighteen principles and 48 recommendations were proposed to facilitate the integration and correlation of sex education content into the SHS curriculum.

263. HARRIS, Ruth W. The effects of learning to relax differentially on the subsequent learning of a gross motor skill. Ph.D., 1970. 244 p. (R. A. Weiss)
Two groups of 44 students each were selected at random from a population of college freshman women. Both groups were tested initially for relaxation ability using the Myotonometer. The experimental group received 14 lessons in relaxation using Jacobson's technique. It was then determined that this group had learned to relax sufficiently to be considered different from the control group. Both groups were then taught to juggle. Trussell's method of scoring was used to test juggling ability. Results using ANCOVA to adjust for general motor ability indicated no difference between groups in ability to juggle following 8 days of instruction, and that the initial level of relaxation had no effect on learning to juggle. The level of relaxation reached by the experimental group failed to correlate with final ability in juggling.

264. KINGSLEY, Joan L. The effectiveness of teaching large motor skills by the spaced-unit method as compared with the continuous-unit method. Ph.D., 1970. 149 p. (R. A. Weiss)
Determined was whether a group learns a physical activity more effectively by a method which interpolates an interval of time within the instructional unit as compared with a method which continues instruction over a period of time without interruption. Two groups of freshman women students (N = 321) were selected. The experimental group was taught archery and badminton by the spaced-unit method; the control group was taught archery and badminton by the continuous-unit method. Both groups were pretested, posttested at the end of instruction, and tested for retention at the end of a 17-wk. nonpractice interval. The findings showed no significant difference between methods in amount of skill learned or retained.

265. LOGAN, Annette. An investigation of the factors which deter the inclusion of disabled children and youth in programs of recreation service. Ed.D., 1970. 104 p. (E. L. Ball)
Agencies (N = 122) of various types, including commercial, youth organizations, municipal recreation departments, schools, and churches in 10 metropolitan areas were interviewed. Questions were asked about the kinds of services which were provided for the disabled, the kinds of problems that had been encountered in serving them, solutions found, and opinions on serving the disabled. Increases in service were found to be due primarily to the interest of someone on the staff or through requests by an agency which served the disabled. Reasons given for no service included an estimation that there was no need in the area and also that services had not been requested. Major problems encountered were architectural barriers and special limitations imposed by the particular handicap. About half which did not serve did not expect any problems. Most agencies indicated a willingness to serve if asked; and most felt that ordinary community agencies had a responsibility to serve the disabled.

266. ROSMAN, Eleanor. A Vision: A dance based on two symbols from the poetry of W. B. Yeats. M.A., 1970. 75 p. (P. A. Rowe)

267. SANDLER, Lasan. Exploration of verbal accompaniment with the modern dance and presentation of three original dances. M.A., 1970. (P. A. Rowe)

268. TALLMAN, Anna Jean. The effects of coeducational and segregated classes upon selected outcomes of college physical education courses. Ph.D., 1970. 101 p. (R. A. Weiss)

An equivalent-groups experimental design was used with differences between the groups assessed by ANCOVA. Findings indicated no statistically significant differences between the adjusted means of posttest scores of students in segregated classes and in coeducational classes for any of the variables. The adjusted means of the posttest scores tended to be greater for women in coeducational classes than in the all-female class. Men in the coeducational sections had greater posttest adjusted means in social adjustment, badminton understanding, and archery skill, and lower adjusted means in the other variables than segregated men. An open end questionnaire indicated a decided preference by women for coeducational classes while the men were divided in preference.

269. THOMAS, Ralph. An analysis of absolute dance for a choreographic work. M.A., 1970. 41 p. (P. A. Rowe)

270. TURNER, Louise. The television direction of a video tape of original chorevideo dance. Ph.D., 1969. (W. P. Sears, Jr.)

271. WELSH, Raymond L. Effects of interpolated mental practice on the learning and retention of a novel motor skill. Ph.D., 1970. 58 p. (R. A. Weiss)

Three groups representing 3 conditions practiced the novel ring tossing task daily for 15 days in accordance with the prescribed sequence P-X-P, M-P-P and P-P-M and served as control groups for an experimental group, which practiced in accordance with the sequence P-M-P. A criterion test, administered on day 1, 15, and 43, served as the basis for determining the effectiveness of learning and retention of the novel ring tossing task with respect to the conditions described. ANCOVA indicated no advantage for the interpolated mental practice group over the physical (P-X-P), mental-physical (M-P-P) and physical-mental (P-P-M) control groups with respect to learning or retaining the novel ring tossing skill.

## North Carolina Central University, Durham, North Carolina (R. E. Townes)

272. CHEEK, William A. The attitude of freshman male and female students at North Carolina Central University toward physical education as a requirement. M.S. in Physical Education, 1970. 48 p. (R. E. Townes)

The Wear Attitude Inventory, consisting of 40 positive and negative items concerning attitude toward PE as a requirement, was administered to 2 samples of 150 male and 150 female students at North Carolina Central University. Ss had a good attitude toward PE and there was no significant difference between the attitude of the male and female sample toward PE as a requirement. Both samples agreed that PE is a valuable subject, association with others in physical activities is fun, PE helps a person gain and maintain all-round health, and PE builds strength and endurance and contributes mentally and emotionally to the school program.

273. COFIELD, Leroy. Comparison of the physical fitness levels of seventh grade boys before and after a planned physical education program. M.S. in Physical Education, 1970. 40 p. (R. E. Townes)
The testing device was the AAHPER Youth Fitness Test, measuring arm and shoulder girdle strength, abdominal strength, speed, agility, flexibility, skill and coordination, and cardiovascular efficiency. Comparison of the initial and final scores of the 70 Ss revealed an improvement in each test and each component of physical fitness. It is recommended that more emphasis be given in schools to planned programs of PE for desirable physical development.

274. DAVIS, James Edward. A study to determine the status of professional education in physical education in selected colleges in South Carolina during the school term of 1969-1970. M.S. in Physical Education, 1970. 69 p. (R. E. Townes)
A checklist questionnaire was administered to 4 institutions in the State of South Carolina during the school term 1969-1970 to determine the status of PE professional preparation. Departmental chairmen, staff members, and librarians were interviewed. Hours required for graduation ranged from 124 to 132 hr. Hours required for a major ranged from 33 to 39. Faculty members with less than a master's degree were permitted to teach professional courses in PE in 2 of the 4 institutions. These institutions did not have any departmental chairmen with earned doctorate degrees. Two of the institutions met the requirement of 50% of the semester hours required for graduation in the general education area including the foundation science, but none of the institutions required two-thirds of the remaining 50% in the area of specialization. Course coverage in the professional techniques and professional theory, as a group, was below the minimum required hours. The library facilities of these institutions did not meet the standards set by the American Library Association relating to books and periodicals in the area of specialization. The service facilities, instructional facilities, and administrative facilities were inadequate in these institutions.

275. ELLISON, Sylvia Ann. A study of professional preparation in physical education in selected colleges in Georgia. M.S. in Physical Education, 1970. 66 p. (R. E. Townes)
A questionnaire-checklist was administered to 6 black colleges in Georgia during the 1967-68 school year in order to determine the status of professional PE programs. Studied were general institutional practices, student selection, faculty selection, course requirements, library facilities, and facilities for the teacher training program. These institutions were accredited by the Southern Association of Colleges and Schools, and with the exception of 1, accredited by their state department of education. Students were admitted on the basis of Scholastic Aptitude Test scores, and graduation with a "C" average from an accredited SHS. Three of these institutions had departmental chairmen holding the earned doctorate. Thirty-four of the 39 faculty members were members of their national professional organization. The professional technique area was the strongest of the teaching areas, and the nonprofessional area was the weakest. The libraries did not meet the American Library Association standards; and the administrative, instructional, and service facilities were inadequate.

276. GETER, Harry Leon. Professional education in physical education in selected colleges in Virginia. M.S. in Physical Education, 1970. 63 p. (R. E. Townes)
The Townes' Checklist was administered to 3 predominantly Negro institutions in Virginia during the 1968-69 school year to determine the status of general institution practices, as well as practices in course requirement, student selection, library facilities, staff selection, and administrative, instructional, and service facility practices. None of the institutions met the standards in general education, including the foundation sciences, of 50% of the hours required for graduation. These colleges met the minimum standard of 200 different titles of books in the professional collection; however, they did not meet the standard of 40 to 50 periodicals. The administrative, instructional, and service facilities were found to be inadequate for providing comprehensive learning experiences for PE majors.

277. HENDERSON, Florence B. Professional education in physical education in selected colleges in North Carolina. M.S. in Physical Education, 1970. 62 p. (R. E. Townes)
A questionnaire-checklist was administered at 8 institutions to determine the status of professional education in PE. The 8 institutions were accredited by the State Department of Education, but only 7 of the institutions were accredited by a regional accrediting agency. The 8 institutions required complete physical examinations, character references, and had full time nurses, but only 2 had full time doctors. Seven of the 8 institutions did not meet staff requirements in relation to doctoral degrees in the PE departments.

278. HINTON, Julia Waddell. A comparative study of two programs of physical education for increasing physical fitness: The sports method and the conditioning exercise method. M.S. in Physical Education, 1970. 52 p. (R. E. Townes)
Two samples of 50 tenth grade girls were administered 6 items of the AAHPER Youth Fitness Test, and were matched according to scores. Both the Conditioning Exercise and Sports Method groups scored highest on strength, power, and flexibility of the arm muscles on both the initial and final tests. Both groups made the largest percentile gain in speed, agility, flexibility, and endurance. The Conditioning Exercise group made the least percentile gain in strength, power, and endurance of the leg muscles; while the Sports Method group made the least percentile gain in strength, power, and endurance of the arm muscles. The difference between the means of the retest scores for the two groups was not statistically significant.

279. JAMES, Mary Shropshire. Dance education in selected secondary schools in Georgia. M.S. in Physical Education, 1970. 37 p. (R. E. Townes)
Twenty-nine of 38 SHSs responded to a questionnaire. Nineteen of the 29 schools had programs in dance education. The schools offered this program as follows: 11 offered dance in the tenth, eleventh, and twelfth grades; 5 taught dance in tenth and eleventh grades; and 3 taught dance in the tenth grade. Classes were mixed in all cases. Twelve of the teachers of dance had majors in PE and minors in education, health or biology. These teachers had undergraduate training in social dance, folk and square dance, beginning modern dance, intermediate modern dance, and tap and clog dance.

280. JONES, Scarlett Burle. A survey of professional preparation programs in the area of physical education in the Southwestern Athletic Conference. M.S. in Physical Education, 1970. 60 p. (R. E. Townes)
A checklist questionnaire was administered to 8 institutions during the 1969-70 school term to determine the status of PE professional preparation programs. Departmental chairmen and staffs were interviewed; and the library, indoor, and outdoor facilities were surveyed. These institutions, with the exception of 1, were accredited by their regional accrediting agency. Hours for a major ranged from 30-41 with an average of 37. These institutions, as a group, did not require 50% of the hours for graduation in general education including the foundation sciences; and none of these institutions required two-thirds of the remaining 50% in the area of specialization. The library facilities did not meet the standards set by the American Library Association.

281. ROBERTS, Samuel. Budgetary practices in North Carolina and New Jersey schools. M.S. in Physical Education, 1970. 52 p. (R. E. Townes)
An adaptation of the Bucher checklist for budgeting and financial accounting was administered to 4 selected SHSs in New Jersey and 4 selected SHSs in North Carolina. The North Carolina sample did not do an adequate job of keeping a detailed account of equipment, keeping account of equipment, keeping accurate records, making notations of needs, or provisions for storage of equipment. The New Jersey sample did a better job in the area of caring for equipment and supplies. New Jersey schools spent more money on each phase of the PE program than North Carolina schools, with the exception of the area of guarantees paid to visiting team.

282. TAYLOR, Arcelia F. The effectiveness of learning badminton skills for women in a coeducational class and in separate class for women. M.S. in Physical Education, 1970. 43 p. (R. E. Townes)
Freshman women students (N = 34) were administered the revised French-Statler Badminton Test. Two samples were matched and then exposed to 8 wk. of instruction in coeducational and non-coeducational classes. The samples were retested after the period of instruction. Based on the findings, women learn badminton skills effectively when taught in either a coeducational class or in a non-coeducational class.

283. WYATT, Thomas Eli. The social distance between black and white athletes participating in interscholastic athletics at integrated high schools in Durham and Wake Counties. M.S. in Physical Education, 1970. 43 p. (R. E. Townes)
The Cowell Personal Distance Ballot was administered to 107 black and white players in 3 integrated high schools in Durham and Wake Counties. This sample consisted of 32 black and 75 white players participating in basketball and football. Black players accepted white players at a closer personal distance than white players accepted black players. The basketball players, as a group, were at a closer social distance than the football players, as a group.

**University of North Dakota, Grand Forks, North Dakota** (W. C. Koenig)

284. ANDRUD, Wesley E. The personality traits of high school, college and professional football coaches as measured by the Guilford-Zimmerman temperament survey. M.S. in Education, 1970. 72 p. (R. D. Clayton)

Of approximately 80 coaches in attendance at the 1970 University of North Dakota Football Clinic, 19 volunteered to be Ss. Each S's 10 raw scores were grouped and added in order that the mean for each variable could be computed and recorded on the standard profile chart designed by Guilford and Zimmerman. It was found that 3 variables--general activity, emotional stability, and masculinity--resulted in mean scores which were around the 70th percentile rank. Ambition, energy, and general activity were tendencies possessed by the coaches tested. Three other variables, ascendance, sociability, and personal relations, represented scores in the upper 50th percentile range. Restraint, objectivity, friendliness, and thoughtfulness represented scores which ranked at the 50th percentile.

285. CERIO, Paul M. A method for evaluating cardiovascular conditioning in swimmers. Masters in Education, 1970.

Ss were 2 male Caucasians with previous competitive swimming experience, tested twice a week during 3 predetermined segments of the training season. They were tested during the first 10 min. of the regular practice session. Comparisons were made among the 3 different segments of the training to see if there was a trend toward cardiovascular conditioning. An index, developed by the investigator, was used to see if it paralleled the testing results as an indicator of cardiovascular conditioning. Conclusions indicated that cardiovascular conditioning did occur during the testing season. With 1 S the index was not representative of the cardiovascular conditioning that occurred during the season. With the second S the index paralleled the cardiovascular conditioning which occurred. The size of the test sample was too small to indicate a definitive relationship between the index and cardiovascular conditioning, but the use of the index does show promise.

**University of Northern Colorado, Greeley, Colorado** (D. A. Phillips)

286. BROWN, Robert F. The effects of programmed instruction on achievement in physiological kinesiology. Ed.D., 1969. 68 p. (J. N. Barham)

287. CHRISTOPHER, Jon R. Principles for the organization and administration of municipal recreation programs. Ed.D., 1968. 125 p. (M. Shirley)

288. COLE, Jerry Robert. The relationships between attitudes toward physical education activities, motor performance, and socio-economic status of Negro and Caucasian college men. Ed.D., 1968. 86 p. (R. A. Montgomery)

289. DEOBOLD, Jean F. The effect of test anxiety on performance in motor skill tests. Ed.D., 1968. 71 p. (L. C. Butler)

290. ELLIOTT, Eddie Mayes. The effects of a period of sustained weight reduction on the physical efficiency of collegiate wrestlers. Ed.D., 1969. 50 p. (L. C. Butler)

291. ESTES, Gene. Comparison of two training methods, telemetered heart rate responses and times of college males in the one-mile run. Ed.D., 1969. 60 p. (L. C. Butler)

292. FAJEN, Kathleen L. The relationship of selected variables to the performance of the flexed-arm hang for women. Ed.D., 1968. 95 p. (B. Everett)

293. FLEMING, Wayne A. The effects of muscle tone development upon verbal learning ability. Ed.D., 1969. 61 p. (J. N. Barham)

294. FLOOD, James J. The effects of a power weight training system on strength, cardiorespiratory efficiency, and power. Ed.D. in Physical Education, 1970. 103 p. (N. Van Anne)

Male college students (N = 107) in 4 intact PE classes were pretested for strength, cardiorespiratory efficiency, and power with cable-tension strength tests, the Harvard Step Test, and the vertical jump test. Training programs compared were team sports, circuit training, conventional weight training, and power training. All groups trained twice weekly for 10 wk. Tests were repeated during the sixth week and after the tenth week. ANCOVA, t, and Scheffé tests revealed significant ($P < .05$) cardiorespiratory efficiency gains after 5 weeks by all groups. At this time only the power training group made significant gains in power. After 10 weeks of training all groups made significant gains in cardiorespiratory efficiency and power. The power training group made significant gains in 4 strength measurements; the conventional weight training and circuit training groups gained significantly in 3 strength measurements; and the team sports group gained significantly in 2. A significant difference existed among the 4 groups in a composite score for strength, cardiorespiratory efficiency, and power after 10 wk., but none was found between any 2 groups.

295. GIERSCH, Marvin L. The effects of teaching progressive and differential relaxation to fourth grade students. Ed.D. in Physical Education, 1970. 110 p. (N. Van Anne)

Fourth grade students (N = 26) were randomly assigned to 2 groups. The experimental group received 4 5-min. periods weekly of instruction in relaxation methods for 12 wk., while the control group received no instruction. One period each week the experimental group received instruction in how to apply the techniques of differential relaxation to various PE activities. The criterion variables utilized to measure progressive relaxation ability were integrated electromyogram recordings taken over the right biceps brachii while S was at rest, resting heart rate, and resting respiration rate. The criterion variable utilized to measure differential relaxation ability was the recovery heart rate following a 3-min. step test. Pre- and post-test scores of the 4 criterion variables were analyzed. Resting respiration rate was the only criterion variable for which there was a significant decrease (.05 level) in the mean difference score of the experimental group when compared with the score of the control group.

296. GOTTA, Jerry Mark. An evaluation of health concepts for personal health courses in colleges and universities. Ed.D., 1968. 107 p. (L. C. Butler)

297. HANCOCK, Thomas Clarke. The effect of various levels of intensity of athletic participation upon academic achievement in high school. Ed.D., 1968. 73 p. (R. A. Montgomery)

298. KATSIMPALIS, Tom P. The effects of isometric exercise on the educable mentally retarded. Ed.D., 1968. 63 p. (L. C. Butler)

299. KRAHENBUHL, Gary Stuart. The relationship of personality traits and catecholamine excretion in athletic competition. Ed.D., 1969. 86 p. (J. N. Barham)

300. LOCHNER, Jim Warren. The professional preparation of health education personnel and the status of health education in public secondary schools of Colorado. Ed.D., 1969. 103 p. (R. Hardy)

301. MILLER, Perry F. The 300-yard run as an endurance test and the effect of running speed and body structure on its performance. Ed.D. in Physical Education, 1970. 60 p. (R. F. Montgomery)

College male students ($N = 486$) were tested on the 300-yd. run twice, once on a short tight course on the gymnasium floor and once on the 1/4 mile running track. Both tests correlated significantly ($P < .05$) with the 12-min. test and the Harvard Step Test, which were used as criterion measures. The height, weight, ponderal index, and 60-yd. running speed were measured and tested as to their influence on 300-yd. performance. Running speed ($P < .01$) and ponderal index ($P < .05$) correlated significantly with both forms of the test.

302. MOORE, Alfred, Jr. A departmental honors program for physical education. Ed.D., 1968. 207 p. (R. A. Montgomery)

303. MOORE, LeRoy G. A dynamic performance as influenced by anthropometic variables. Ed.D., 1968. 64 p. (L. C. Butler)

304. MUSGROVE, Dolores Marie. A factor analytic study of perceptual motor attributes as measured by selected test batteries. Ed.D. 60 p. (N. Van Anne)

Scores of 80 first and second grade level public school children on the 28 test items of the Perceptual-Motor Attributes of Mentally Retarded Children and Youth battery and the Purdue Perceptual-Motor Survey were factor analyzed. Ten factors were extracted and identified according to factor loadings for each test item. Nine factors were named: Visual Tracking, Visual Discrimination and Copying of Forms, Visual Discrimination and Copying of Rhythmic Patterns, Verbal Body Image, Dynamic Balance, Spatial Body Perception, Postural Maintenance, Visual Discrimination and Copying of Motor Patterns, and Gross Agility. Individual test items are very specific in nature and measure very specific perceptual motor acts.

305. NEWTON, Donald McKay. An evaluation of undergraduate professional preparation programs in physical education for men in Canadian universities. Ed.D., 1969. 127 p. (L. C. Butler)

306. ORCUTT, Dorothy J. Evaluative criteria for administrative measurement of recreation programs for senior citizens. Ed.D. 142 p. (L. C. Butler)

307. RAARUP, Dennis Paul. The effect of leg readiness on body movement time. Ed.D., 1968. 42 p. (H. L. McKain, Jr.)

308. RABE, E. John. The identification of wrestling performance competencies, and the development of a standardized knowledge examination in wrestling for college men in professional physical education. Ed.D., 1969. 118 p. (R. A. Montgomery)

309. REIMER, Delmer James. Uninhibited emotional release to stress during physical activity. Ed.D., 1969. 82 p. (H. L. McKain, Jr.)

310. RHEA, Harold Conrad. The value of video self-analysis as a reinforcement rechnique for learning when substituted for actual practice of gross motor skills. Ed.D., 1968. 65 p. (R. A. Montgomery)

311. VAN DINTER, Norbert R. The relationship between sports participation, attitudes towards sports, social-economic status, and the self-concepts of male problem youth. Ed.D. in Physical Education, 1970. 104 p. (L. C. Butler)

Data were gathered concerning sports participation, attitudes toward sports, social-economic status, and the self-concepts of 39 male problem youth of JHS age who were under the jurisdiction of the 17th Judicial District of Colorado. Twenty-seven had played sports for 2 seasons; 38 showed a favorable attitude toward sports; 28 came from blue-collar backgrounds; and 27 scored positive on a weighted self-concept scale. These basic results contradicted much of the literature concerning problem youth and the variable used. Tetrachoric correlation and a 2X2 chi square revealed that those who had played sports had a more favorable attitude toward sports than those who had not played. The white-collar boys who had played sports had a more favorable attitude toward sports than the white-collar boys who had not played.

312. WILSECK, Robert F. The effects of a patterning program of physical activity on the motor ability performance of the educable mentally retarded. Ed.D., 1968. 134 p. (N. Van Anne)

313. WILSON, Philip Keith. Relationship between motor achievement and selected personality factors of junior and senior high school boys. Ed.D., 1968. 109 p. (J. N. Barham)

**North Texas State University, Denton, Texas** (J. Douthitt)

314. CLARK, Sharon E. A comparison of two approaches to presenting two series of locomotor skills to children with minimal brain dysfunction. M.S. in Physical Education, 1970. 49 p. (W. E. Cragin)
An adaptation of a motor evaluation sheet suggested by Valett was used to measure performance of 39 elementary aged Ss on each of 6 individual locomotor skills and 2 series of locomotor patterns. Ss had been classified as children with minimal brain dysfunction. Individual locomotor skills included the run, gallop, skip, hop left, hop right, and jump; Series I consisted of the run, gallop, and skip, and Series II of the hop left, hop right, and jump. Ss were randomly divided into 3 groups with Group 1 receiving instruction and practice on a massed basis, Group 2 on a distributed basis, and Group 3 served as a control. A pretest was administered and posttests were administered immediately, 1 wk., and 3 wk. following instruction. Analysis of data revealed that both experimental groups made significant gains. It was concluded that when considered on a massed or distributed basis there is no preferred approach. The influence of dissociation was not necessarily affected by a massed or distributed approach, but did tend to diminish with practice, and perseverance did not seem to be an important factor in the performance of a series of locomotor skills.

315. COWAN, Robert A. A comparison of two methods of prophylactic hand care for junior high girls performing uneven bar skills. M.S. in Physical Education, 1970. 36 p. (J. E. Douthitt)
JHS girls ($N = 60$) performed uneven bar skills after specific treatment was applied to the hands. One group had the hands taped, a second group applied a commercial icing product, and the third group applied chalk. Ss performed specific skills during 4 days of practice. Each S performed each day until symptoms of blister formation appeared or until fatigued. Total number of repetitions was recorded for each S. The mean for the icing group was significantly greater ($P < .05$) than the means for either of the other groups. Ss from both the taping and control groups developed blisters, while no blisters were reported for the icing group.

316. CUNNINGHAM, Sarah D. A comparison of attitudes toward physical activity expressed by male and female students in the required physical education activity program at North Texas State University. M.S. in Physical Education, 1970. 56 p. (I. Caton)
The Kenyon Attitude Inventory, form ATPA, was administered to men and women freshman and sophomore students ($N = 2,667$) during the 1970 spring semester. Data were organized in such a manner that comparisons could be made according to college classification and sex of Ss. It was concluded that female students perceive physical activity as a source of health and fitness, while males perceive it primarily as providing vertigo experience. All freshman and sophomore students possess a positive attitude toward physical activity; however, females possess a slightly more positive attitude than do males.

317. GIBBINS, Douglas W. The selection, use, and maintenance of the modalities of physical therapy by selected professional athletic trainers in the Dallas-Fort Worth area. M.S. in Physical Education, 1970. 58 p. (J. E. Douthitt)
Data relative to type of modalities used, criteria for selection, methods of use, and maintenance procedures were collected during personal interviews

with 12 trainers in the Dallas-Fort Worth area. A total of 9 types of modalities was reported with the number per training room ranging from 8 to 2. Criteria for selection were economy of purchase and upkeep, safety of operation, and size and versatility. The whirlpool was the most widely used, while the electric traction unit and the heat lamp were used less frequently than any of the other modalities.

318. HAMPTON, Gary W. The effects of three physical education activities on selected physical fitness components. M.S. in Physical Education, 1970. 47 p. (J. E. Douthitt)
College freshman males (N = 75) were tested on flexibility, balance, agility, and endurance using the Scott and French Bobbing Test, Right Boomerang Run, Bass Test of Dynamic Balance, and Burpee Test. Ss were retested following 4 weeks of class participation in either swimming, wrestling, or apparatus gymnastics. Analysis of differences between pre- and post-test scores indicated significant increases in balance, endurance, and agility by the gymnastics group; in flexibility and agility by the swimming group; and in agility and endurance by the wrestling group. Analysis of posttest scores indicated that there were no differences between means that were statistically significant ($P > .05$).

319. HEYDMAN, Allan W. A mechanical analysis of the forward pass. M.S. in Physical Education, 1970. 36 p. (J. Watson)
Film taken from 3 camera positions was analyzed to investigate differences between the short (25yds.) and long (50 yds.) forward pass. S was a varsity quarterback who had received national recognition as a passer. For the long pass, S demonstrated consistently a longer supporting base, a greater amount of shoulder rotation, upper arm abduction, and shoulder elevation. Radial flexion at the wrist and elbow flexion were less for the long pass and the angle of release was greater.

320. HILLIARD, Sherry A. The construction of a test to measure perceptual ability in tennis for college women. M.S. in Physical Education, 1970. 63 p. (W. E. Cragin)
College women (N = 150) enrolled in beginning tennis classes performed on a test devised to measure the ability of an individual to make the necessary perceptual judgments prior to the execution of a stroke. The test involved judging the flight of an oncoming ball and indicating the position on the court where it would land. The test was administered to all Ss at the beginning and again at the end of a 7-wk. period of testing. During the testing period Ss were tested to measure depth perception, reaction time, spatial orientation, and spatial visualization, in addition to the Hewitt Forehand and Backhand Drive Test. Analysis of data included computation of a zero-order $r$ to determine reliability and a multiple regression analysis to establish content validity. It was concluded that perceptual ability involved in making judgments about an oncoming ball and in successfully contacting the ball appears to depend more upon reaction time than other measured perceptual factors. The devised test to measure this ability is not reliable enough in its present form to be of practical use, and the test appears to lack predictive validity more than it does content validity.

321. JOHNSON, Steven L. A survey and comparison of educational and experiential qualifications of selected city recreation directors in Texas. M.S. in Physical Education, 1970. 67 p. (D. C. Bailey)

Data from questionnaires returned by 59 of 81 city recreation directors in Texas were compared with standards recommended by the National Recreation and Parks Association. A majority of the directors did not possess recommended educational qualifications but did meet experiential qualifications. It was concluded that criteria for hiring recreation directors in Texas do not coincide with educational recommendations of NRPA, that supervised field work programs are now evident at the graduate professional level, and experience in supervisory or executive capacities is weighed heavily in hiring city recreation directors.

322. LEAVERTON, Sandra L. The measurement of body awareness of seventh, eighth, and ninth grade girls and a comparison of this awareness to their ability to perform two gross motor tasks. M.S. in Physical Education, 1970. 48 p. (W. E. Cragin)

The Body Prominence Test, designed to measure the degree of body awareness in relation to the total environment, and the Body Focus Questionnaire, to measure the degree of body awareness toward the arm and leg areas, were administered to 155 JHS girls. Each S also performed 3 trials of each of 2 gross motor tasks, 1 of kicking a ball into a target 5 times, and 1 of hitting a ball into a target 5 times. The score for each trial was the time in sec. required to complete the task. Factorial ANOVA was used to determine effects of grade level and degree of total body awareness upon performance on the gross motor tasks and to determine the effects of degree of arm and leg awareness upon motor task performance. It was concluded that total body awareness, as measured by the Body Prominence Test, does not affect performance and performance is not significantly different between the 3 grade levels. In addition, performance on the selected tasks does not seem to be affected by awareness of specific areas of the body which are directly involved in the task.

323. SLOAN, Allison A. A study of the effects of classroom instruction in the areas of folk dance, modern dance, and tap dance upon the development of rhythmic ability of college women. M.S. in Physical Education, 1970. 87 p. (I. Caton)

The results of Barnard's Rhythmic Background Questionnaire were used to select college freshman and sophomore women (N = 86) who had received no professional dance training. Each of 4 groups participated in a unit in tap dance, modern dance, folk dance, or as a control. The Harvey Rhythm Test was administered to all Ss before and after the various programs of instruction. Computation of differences between correlated means revealed all groups made gains that were statistically significant ($P < .05$). Results of ANOVA indicated that differences between means were not significant ($P > .05$). It was concluded that participation by college women in an organized program of folk, modern, or tap dance improves rhythmic ability but that no 1 type of dance instruction is superior to the others. The development of rhythmic ability may be an innate rather than a learned skill.

**Ohio State University, Columbus, Ohio** (D. K. Mathews)

324. BASON, Robert. Energy sources during work under normoxic and hypoxic conditions. Ph.D. in Exercise Physiology, 1970. (D. K. Mathews, C. Billings, E. Fox)
Assessed was whether the power derived from the aerobic, lactacid, and alactacid energy components was utilized any differently at altitude than at sea level. A reciprocal relationship between aerobic and anaerobic power was observed which tended to suggest an increased reliance on the anaerobic power during acute hypoxic exposure.

325. CREMER, Alma G. Relationships between body size estimates, body image boundaries, and health practices in pre-adolescents. Ph.D. in Health Education, 1970. 128 p. (W. P. Cushman)
Relationships between scores made on body size estimates, measurements of body size dimensions, Barrier Index, Penetration Index, and Health Behavior Inventory by preadolescent boys and girls in Catholic schools were determined.

326. DOE, Robert D. The metabolic effects of a seven-week aerobic interval training program. Ph.D. in Physical Education, 1970. 35 p. (D. K. Mathews)
The purpose was to evaluate effects of a 7-wk. aerobic interval training program on selected physiological changes measured before and following the training period. Results showed a predominantly aerobic training program increased aerobic capacity.

327. HUTTER, David M. A study of the attitudes affecting the behavior of the administration of intercollegiate athletics. Ph.D. in Physical Education, 1970. 296 p. (W. P. Ashbrook)
The purpose was to determine relationships between expressed attitudes of those associated with the administration of intercollegiate athletics and practices in effect in their respective institutions. No significant relationship (.05 level) was found between attitudes and practices in existence in the administration of intercollegiate athletics.

328. MRAVETZ, Robert J. The influence a famous athlete has on the development of the ideal self in eighth grade boys and girls. Ph.D. in Physical Education, 1970. 103 p. (M. Mordy)
The purpose was to determine the influence famous athletes have on adolescents and the values that these adolescents associate with the famous athletes. Comparisons were also made between male and female Ss. It was concluded that famous athletes do have an influence on adolescents.

329. NASH, John C. The relationship of ordinal status to sex role identity, father-identification, and self-esteem among university males. Ph.D. in Health Education, 1970. 157 p. (W. P. Cushman)
An all-male (N = 210) sample was given a semantic differential scale to respond to the concepts of Man, Self, Father, and Ideal Man. Multiple discriminant function analysis techniques were used over each of the variables of ordinal status, religion, and family density. Ordinal status was not found to be a significant factor.

330. QUISENBERRY, Dorothy J. A use of the semantic differential to determine the perceptions of students toward women high school physical education teachers. Ph.D. in Physical Education, 1970. 90 p. (M. A. Mordy)

A semantic differential was constructed and administered to incoming freshman women at Ohio State University. It was designed to measure the perceptions which students held toward women SHS physical educators. Perceptions were compared with those held toward all other women SHS teachers.

331. WHITNEY, Leonard A., Jr. The energy cost of eccentric and concentric muscular contractions. Ph.D. in Physical Education, 1970. 39 p. (D. K. Mathews)

Seven male subjects (ages 18-21) were tested with a specially designed electric dynamometer for energy costs of eccentric and concentric muscular contractions of the right elbow flexor muscle group. Ss worked at 20%, 40%, and 60% of their maximum eccentric and concentric strengths. Energy cost was significantly lower for eccentric muscular contractions.

332. WILSON, Beverly D. Self-perception and peer perception of a group of college women physical educators. Ph.D. in Physical Education, 1970. 101 p. (M. A. Mordy)

The purposes were to measure group self-perceptions held by college women physical educators toward themselves and to compare these with the perceptions held by college male physical educators toward this study group. Results obtained indicated significant differences beyond the .01 level on each stated perception.

## Oklahoma State University, Stillwater, Oklahoma (A. B. Harrison)

333 CROWELL, Bernard G. Energy cost of participation in golf as determined by telemetry. Ed.D. in Physical Education, 1969. 114 p. (A. B. Harrison)

Middle aged males (N = 7) played 9 holes of golf while carrying clubs, 9 holes while pulling a cart, and 9 holes while riding a cart. Heart rates were continuously recorded by portable telemetry. Mean heart rates for the entire rounds as well as selected segments were determined by playback of the telemetry tapes. Oxygen intake and energy cost were predicted from a graph constructed for each S, which plotted his heart rate against oxygen intake at several walking speeds on the treadmill. Heart rate, M = 113, and oxygen intake, M = 1.5 L/min., were highest while carrying clubs and lowest (M = 89 bpm, M = 1.0 L/min.) while riding the cart. Distance walked was greatest while pulling a golf cart (M = 4.58 miles). Heart rates were consistently higher while putting than while teeing off. According to most work classification charts, golf while riding a cart or pulling a cart would be light activity, but while carrying one's own clubs it would be classed as moderate activity.

334. DAVIS, Howard. A comparison of academic achievement and success on the National Teachers Examination of physical education majors and non-majors in selected, predominantly Negro colleges and universities. Ed.D. in Physical Education, 1971. 125 p. (A. B. Harrison)
Status of PE professional programs in 26 Negro colleges were determined by comparing entrance exam scores, GPAs, and NTE scores of PE major with nonmajor students. The status of the teacher education programs in these colleges was examined by comparing Ss' NTE scores with national norms. Scores were obtained from 3,307 Ss, including 400 PE majors. Students majoring in PE had significantly lower entrance exam scores, GPAs, and NTE (common) scores than other majors. Students majoring in PE scored no differently on the optional section of the NTE than other majors. A comparison of the mean NTE (common) scores of each institution with national norms showed a range of from 5% to 45%. Teacher education programs in these schools seems to be quite inadequate.

335. EVANS, Melvin I. The effect of steam bathing on the cardiovascular system. Ed.D. in Physical Education, 1970. 80 p. (A. B. Harrison)
Forty middle-aged men were randomly assigned to control and experimental groups. The experimental group took 15 min. steam baths (temp.=125°) 3 times a week for 8 wks. EKG records and the Schneider Index were used as pre- and post-tests. Heart rates were periodically checked during the steam baths. There was no statistically significant change found in any of the EKG measures (T, P wave amplitudes, rest time, work time, rest-work-ratio). T wave amplitude increased, P wave amplitude decreased, and rest-work ratio increased consistently in most Ss. After 20 min. of steam bathing mean heart rate rose to 166 bpm. There was a significant increase in the Schneider Index of from 13 to 14.7.

336. HUDDER, Gerald D. The effect of participation in an aerobic training program for selected men over age 25. Ed.D. in Physical Education, 1970. 101 p. (A. B. Harrison)
27 middle-aged Ss participated in an aerobics fitness program of their choice of activity, acquiring at least 30 points a week for 16 weeks. Seven additional Ss were used as controls. The Balke Treadmill Test for predicted maximal oxygen intake was used as a pre- and post-test. Ss entering the program at high fitness levels maintained their level of fitness on this program. Ss entering the program at low and medium fitness levels all raised their predicted oxygen intake capacities. The experimental group gained significantly more than the controls in predicted oxygen intake capacity and made significant gains in resting pulse rate and weight loss.

337. LEWIS, Albert Lester. A progressive step test to predict maximum oxygen intake. Ed.D. in Physical Education, 1970. 61 p. (A. B. Harrison)
40 Ss were randomly selected from a men's residence hall of 705 men. Ss stepped on a 14 in. bench for periods of 90 sec. at cadences of 12, 15, 18, 21, 24, 27, 30, 33, 36 and 39 steps per min. A 30-sec. rest period followed each work period and during this time heart rates were taken by stethoscope and by EKG telemetry. Maximal oxygen intake was measured on S at the end of a Balke Treadmill Test when the pulse rate had surpassed 180 bpm. Most of the subjects reached the 180 bpm level at a stepping rate of 33 steps/min. However the 30 step/min. cadence gave the highest

relationship ($r = -.757$) with maximal oxygen intake. It was concluded that this test procedure offers a valid and reliable procedure for estimating maximal oxygen intakes in college aged men by using the 30 step/min. cadence as the highest work load. Predicted oxygen intake from Balke's prediction graph correlated ($r = .898$) highly with actual measured maximal oxygen intake.

338. TIBBELS, Mary Jess. An instruction manual for use of the Elgin exercise table. M.S. in Physical Education, 1970. 141 p. (D. R. Lindsey)

Five general and 9 anatomical and kinesiological criteria were chosen to serve as guidelines for devising 2 exercises on the Elgin table for each of the major joint movements of the body. A total of 76 exercises was developed and presented to serve as a supplement to those presented in the manufacturer's manual.

## University of Oregon, Eugene, Oregon (E. R. Reuter)

339. BAKER, Boyd B. Physical education and the law: A proposed course for the professional preparation of physical educators. Ed.D. in Physical Education, 1970. 163 p. (W. P. Rhoda)

A course of study was developed which examined the interrelationship of PE and the law, discussed those fundamental legal concepts necessary for knowledge and understanding of the topic, and analyzed litigated cases of law which had particular relevance to PE. The scope of the material covered in the proposed course included: Introduction to Proposed Course; Overview of Tort Law; Introduction to Governmental Immunity; Governmental v. Proprietary Function; Abrogation of Governmental Immunity; Save-Harmless Legislation; Elements of Negligence-Duty, Breach of Duty; Standard of Care; Elements of Negligence-Causal Relation, Damage; Attractive Nuisance, Defenses Against Negligence-Assumption of Risk, Contributory Negligence, Comparative Negligence, Last Clear Chance, Respondeat Superior, Ultra Vires Act; Liability Insurance; Case Studies-Improper Segregation of Pupils, Unsuitable Curriculum, Nuisance, Supervisory Deficiencies, Defective or Dangerous Equipment and Grounds, Liability Insurance; and, the Reasonable and Prudent Physical Educator. Sixty-four litigated cases of law were analyzed to provide illustrative material for the discussion topics. The analyses described the type of action, the level of the court in which the case was litigated, damages sought and damages received, if any, the factual circumstances which surrounded the case, and the pertinent dialogue of the court.

340. BLAIR, Norene E. Parental objectives for family camping in selected national forest campgrounds. M.A. in Recreation and Park Management, 1970. 85 p. (C. M. Reich)

Investigated were the factors and objectives which influence parents to take their children camping, and the relationships of selected family characteristics and past camping experience of the parents to their present attitudes toward camping. Personal interviews were used to collect data from 61 representative camping families in 2 developed campsites located in the Sisters Ranger District, Deschutes National Forest, Oregon.

Statistical analysis included a percentage description of the various social characteristics of camping families, the childhood family camping experiences, and the specific attitudes and values of parents toward family camping. Chi-square tests were used to determine whether the present style of camping, length of stay, or the values parents desired their children to acquire from family camping were significantly related to family background characteristics or to childhood camping experience of parents. It was concluded that certain descriptive characteristics (such as the number and ages of children, type of shelter, and length of campground stay) were similar among the majority of camping families. The benefits of nature orientation predominated in the expressed objectives which parents desired to obtain from the family camping experience.

341. BORTOLIN, Julian J. A comparison of high school football game injuries occurring on artificial and natural turf. M.S. in Physical Education, 1970. 70 p. (E. R. Reuter)

The injury results of 63 games were collected from 7 varsity football teams located in the vicinity of Eugene, Oregon. Of the total injuries, 120 (60%) were reported to have occurred on artificial turf, while those occurring during games played on natural turf accounted for 39% of the total. Abrasions were responsible for 42% of the total artificial turf injuries, and sprains or strains accounted for the largest percentage of natural turf injuries (48%). Seven of the artificial turf injuries were reported to be serious, while 18 of the total natural turf injuries were so classified. Knee sprains or strains were responsible for the greatest number of serious injuries on artificial and natural turf (2 and 5 respectively). A total of 17 artificial turf injuries required full or limited restriction for 1 or more days; these accounted for 62 recuperation days. In comparison, 34 restriction injuries occurred on natural turf, requiring 110 recuperation days. Injuries sustained on wet field surfaces accounted for the largest number of recuperation days, 3.8 per game on artificial turf and 4.6 on natural turf.

342. BOURQUE, Jean R. Relationships between physical fitness and academic success of elementary school children. M.S. in Physical Education, 1970. 57 p. (E. R. Reuter)

343. CADIEUX, Julian. Past and present influences of the International Recreation Association upon development of recreation in member countries. M.S. in Recreation and Park Management, 1970. 28 p. (C. M. Reich)

International Recreation Association (IRA) affiliated agencies (N = 119) in the 62 member countries served as the population. A mail questionnaire survey was used to determine to what extent the IRA has assisted its member countries in the development of recreation, or to what extent the influence of the IRA has been consistent with its written objectives. Thirty-one replies were received and usable for analysis. It was concluded that the IRA has maintained good relationships with its member countries, has been influential in the establishment and development of national recreation services in many countries, and has been consistent in following its written objectives.

344. FARTHING, Sara E. Development of recreation and park management at the University of Oregon: The curriculum, graduate placement, research and extension services. M.S. in Recreation and Park Management, 1970. 83 p. (C. M. Reich)

Traced was the development of the Recreation and Park Management undergraduate and graduate curricula, the placement of graduates, research studies, and the extension services that have evolved at the University of Oregon since the program started in 1955. Collection of data was made through searching written records, personal interviews, and questionnaires sent to 401 alumni. Analysis of data was presented primarily as a chronological overview of important facts and dates. More than 59% of the 237 alumni replying remained in the Pacific Northwest for initial employment. The positions most frequently held were activity supervisor or leader, community recreation director, or supervisor of community recreation.

345. FREEMAN, William Hardin. The coaching attitudes and practices of Oregon high school track and field coaches, 1968-1969. M.S. in Physical Education, 1970. 127 p. (Betty F. McCue)

Investigated were the coaching philosophies and practices related to the handling of athletes by Oregon SHS track and field coaches during the 1968-1969 school year. It was hypothesized that the coaches would be at least slightly authoritarian, leaning toward close control over their athletes, and there would be more concern for results and less concern for the needs of the athletes among the coaches of the larger schools than the smaller schools, the male coaches than the female coaches, the winning coaches than the losing coaches, and the experienced coaches than the new coaches. Data were obtained with a questionnaire sent to each SHS in Oregon. Coaches (N = 312) representing 206 of the 235 schools (88%) known to have track teams responded. Data indicated that the coaches were slightly "permissive," allowing the athletes some degree of freedom from control by the coaches, rejecting the first hypothesis. Little basic difference among the subgroups of Ss in their group responses to the questions resulted in the rejection of the second hypothesis.

346. GRUENINGER, Robert W. Physical and scholastic progress of Medford boys in relation to their Wetzel grid ratings. Ph.D. in Physical Education, September 1970. 354 p. (H. H. Clarke)

Ss were 93 boys of the Medford, Oregon, Boys' Growth Project who had been tested for 8 to 11 consecutive years, between 1956 and 1968. The Wetzel Grid was used to appraise and classify Ss according to physique, relative advancement (age schedule of development), and overall quality of physical growth. Graphical and statistical analyses of mean trends for left grip strength, cable-tension strength average, Rogers' Physical Fitness Index, bar dips, and standing broad jump showed that excellent and satisfactory physical growth were significantly associated with good or superior physical performance; conversely, unsatisfactory growth was regularly accompanied by inferior test scores. Boys with stocky physique were favored in some of the tests, whereas the medium and slender excelled in others. Age comparisons of physical performance were shown to be less precise than those made on the basis of body size. The influence of physical growth quality on mean grade point averages was not significant.

347. HAMMOND, Betty Rae. Motor ability and self-concept in a motor skills class. M.S. in Physical Education, 1970. 58 p. (B. F. McCue)

348. HOWELL, Thomas D. Leisure activities and selected socioeconomic characteristics of aged Baptist church members classified according to active and nonactive Sunday school participation. M.S. in Recreation and Park Management, 1970. 56 p. (C. M. Reich)

The leisure pursuits and related characteristics of active and nonactive Baptist Sunday school attenders were identified. Personal interviews were used to collect data from 2 groups of 35 randomly selected active and nonactive adults age 60 or older who were registered Sunday school class members. Analysis of data included a description of S's socioeconomic characteristics in 5 variables, an inventory of recreation activity sponsorship under 7 categories of sponsors, and an inventory of recreation participation in 11 activity categories. Findings revealed that over 90% of the participation of the total sample was under the sponsorship of self and family. Socioeconomic background, leisure pursuits and recreation activity sponsorship other than church-sponsored were reported similar in both groups. Identical rank order activity preferences by both groups were assigned to literature, music, social, study and education, nature oriented, and crafts and hobbies. Health, transportation, and financial problems prevented greater recreation participation for many Ss from both groups.

349. KIDD, Thomas R. An evaluation of the foundations of physical activity course at the University of Oregon. Ed.D. in Physical Education, 1970. 216 p. (E. R. Reuter)

The purpose was to determine the effectiveness of the Foundations of Physical Activity course at the University of Oregon in the areas of attitude toward physical activity, voluntary physical activity behavior, self-assessment ability on selected physical fitness performances, and knowledge of the principles and benefits of physical activity. A fifth consideration was to determine the interrelationships between the above variables. Pre- and post-questionnaires and tests were administered to control ($N = 64$) and experimental ($N = 64$) groups on attitude, physical activity behavior, and knowledge. Data were analyzed by ANOVA. Pre- and post-questionnaires and tests on self-assessment were administered to the experimental group; these data were analyzed by the correlated $t$-test. Attitude toward physical activity of the experimental group and voluntary physical activity of both groups dropped significantly. Ss were significantly better able to assess themselves on selected fitness performances and significantly improved in knowledge after participating in the course. Significant positive correlations occurred between attitude and self-assessment discrepancy and between attitude and voluntary physical activity behavior.

350. KINNE, Robbin K. The relationship between the achievement of athletes and non-athletes in physical education, academics, and military leadership at the United States Naval Academy. M.S. in Physical Education, 1970. 47 p. (E. R. Reuter)

Data came from the midshipmen of the Class of 1972 ($N = 1,164$) during their first year (1968-1969) at the U.S. Naval Academy. Results indicated that positive relationships exist between athletic participation and grades in all PE areas (bis. $r = .16$ to .42); athletes received significantly ($P < .01$) higher grades in all PE areas. In 3 of the 5 PE areas (first semester, personal defense, and physical development) the standard deviations for the grade distributions of the athletes were significantly smaller than those for the nonathletes indicating a more homogeneous grouping for athletes. A greater percentage of athletes qualified for academic honors (First Semester 28% to 7%; Second Semester 33% to 8%). A greater percentage of athletes also qualified for military leadership honors (First Semester 73% to 12%; Second Semester 77% to 16%).

351. LINDER, Ronald L. A comparison of selected individual characteristics and the use of certain mood-altering substances among high school seniors in Eugene, Oregon. Ed.D. in Health Education, 1970. 144 p. (W. E. Smith)

The purpose was to determine the differences in selected individual characteristics and the use of certain mood-altering substances among a random sample of 113 SHS seniors. Comparisons were made among Ss' use of tobacco, beverage alcohol, and dangerous drugs, based upon their socioeconomic level, birth order, knowledge about mood-altering substances, and academic achievement. Analysis of data revealed: students within the middle socioeconomic level used mood-altering substances to a significantly lesser degree than did students of low and high socioeconomic levels; Ss' academic achievement and knowledge about mood-altering substances did not vary significantly according to their use of such substances and socioeconomic level; and Ss' birth order was not a significant determinant of the use of mood-altering substances.

352. MONAHAN, Russell Dennen. Analysis of selected variables to determine their predictability in selecting successful doctoral candidates in physical education. Ed.D. in Physical Education, 1970. 73 p. (W. P. Rhoda)

Seven variables were studied on 136 successful and 44 unsuccessful doctoral candidates from the School of HPER at the University of Oregon. Successful Ss were favored when the following were considered: graduate study grade point average prior to starting the doctorate, number of graduate hours accumulated prior to starting the doctorate, number of credit hours enrolled in during the first term of the doctoral program, and the results of the Miller Analogies Test scores. The age when the doctoral program was started, years between the completion of the bachelor's degree and master's degree, and the completion of the master's degree and commencement of the doctoral program were not significant. Three of the variables, graduate grade point average prior to starting the doctoral program, number of hours taken in the first term of the doctoral program, and Miller Analogies Test score, when functioning together in a stepwise discriminate analysis, showed the discriminatory ability to classify 88% of the successful and 89% of the unsuccessful subjects. The addition of 2 of the 4 remaining variables increased the discriminatory classification ability to 90% for both groups.

353. NEAL, Larry L. An investigation of attitudes toward and participation of special education teenagers and their nonretarded peers in Oregon's state parks. Ed.D. in Recreation and Park Management, 1969. 117 p. (L. S. Rodney)

Outdoor recreation participation of educable mentally retarded (EMR) teenagers in Oregon's state parks, and their attitudes toward state park services with those of nonretarded teenagers was compared. Fifteen randomly selected EMR youth from special education classes and 15 matched nonretarded JHS and SHS youth drawn from four different communities constituted the 120 Ss. An interview-questionnaire was used to collect data concerning the number of different parks visited, total number of visits, individuals with whom the youth visited, type and numbers of major activities engaged in, number of over-night stays, length of family vacations, and attitudes toward state park services. Statistical analysis for each of the variables included measures of central tendency, frequency distributions or percentages, and the application of the chi-square test. Educational capacity (retarded as compared to nonretarded) had a definite influence upon participation in Oregon state parks. The majority of EMR youth participated less than their nonretarded peers. Attitudes of both groups toward state park services were generally favorable and recommendations for improvements were listed.

354. OLSON, Lorne H. Leisure participation and attitudes toward retirement of middle-aged and retired professional educators. M.S. in Recreation and Park Management. 1969. 41 p. (C. M. Reich)

A random sample of 25 middle-aged faculty members and 20 retired faculty members of the University of Oregon were selected and interviewed to investigate and compare their leisure interests and attitudes toward retirement. Analysis of data did not reveal any significant differences between the 2 groups of professional educators: literary activities received the greatest participation by both groups out of the 13 activity categories investigated; activities recommended by Ss as desirable for retirement were physical activities or hobbies, travel, and nonphysical sports or hobbies; and more than 85% of both the nonretired and retired professional educators considered themselves adequately prepared for retirement. Based upon scores measuring participation, work-leisure philosophy, personal adjustment, and attitudes toward leisure, it was concluded that professional education is an occupation conducive to an adequate life style during retirement.

355. WEBSTER, William D. The development of a basic program of recreation leadership training for teenage youth. M.S. in Recreation and Park Management, 1969. 70 p. (C. M. Reich)

This study investigated and compared existing leadership programs conducted by municipal and county recreation departments, and developed a basic program of recreation leadership training for teenage youth. A mail questionnaire was sent to 40 departments identified by 5 regional directors of the National Recreation and Park Association as conducting leadership training programs for teenagers. Twenty-eight replies were used as data. Description of existing leadership training programs included program titles, purposes, subject areas, age requirements, audiovisual aids, field experience, recruitment, awards, and the use of records and evaluation. A basic program for teenage recreation leadership training was formulated by the application of respondent suggestions, frequently accepted practices, and judgments of the investigator and assisting faculty.

356. WARD, I. Barrymore. Longitudinal analyses of skinfold measures as related to selected physical tests for boys twelve through seventeen years of age. Ph.D. in Physical Education, 1970. 88 p. (H. H. Clarke)

Three skinfold measures and 19 maturity, physique type, body size, strength, and motor tests were administered annually to the same 113 boys, aged 12-17. Generally, the highest interage correlations for the skinfold measures occurred between adjacent ages; these correlations ranged between .69 and .89. When 5 years intervened, the interage correlations varied from .52 to .66. The highest correlations with skinfold total were found for endomorphy, ectomorphy, and weight; their respective correlational ranges were .71 to .89, -.50 to .71, and .53 to .70. Correlations with Rogers' arm strength score, Physical Fitness Index, and standing broad jump were negative and significant at all ages, except for standing broad jump at 17 years. Mesomorphy and hip width were each significant at all but 1 age; skeletal age, at 2 ages; cable-tension strength average, at 1 age; and standing height, at no age. The range of multiple correlations for 6 of the ages was from .76 to .80; the dependent variable was endomorphy and the independent variables were weight and height.

## **Pennsylvania State University, University Park, Pennsylvania** (E. A. Gross)

357. ANDERSON, Larrimore. Comparison of the characteristics of four strength testing instruments. M.S. in Physical Education, 1970. 102 p. (C. A. Morehouse)

Preliminary calibrations with static weights and isometric strength tests of 65 college men were used to compare the reliability and measurement precision of the spring dynamometer, the cable tensiometer, the electrical strain gauge, and the linear variable differential transformer (LVDT). Initial calibration was performed on each instrument separately in both vertical and horizontal positions to determine the effect of varying position on instrument response. Calibrations were also performed in each of 4 tandem orderings to determine the effect of varying instrument position with respect to the other instruments when all were placed within the same cable system to measure force simultaneously. The strength of finger, wrist, and elbow flexor muscles of the preferred arm of the S was tested 3 times daily on each of 3 days within a 5-day period while the 4 instruments were in the tandem arrangement. All instruments were equally stable on test-retest comparisons using statistical correlation techniques for within-day and between-day trials. Comparisons based on mean errors showed that the tensiometer was most stable from trial to trial, and that the strain gauge measured small increments most precisely. The LVDT response curve was most nearly linear and showed the least amount of hysteresis.

358. BARLOW, David A. Relationship between power and selected variables in the vertical jump. M.S. in Physical Education, 1970. 79 p. (R. C. Nelson)

Cinematographic techniques were used to investigate the performance of 30 male students in 2 variations of the standing vertical jump for the purpose of determining the relationship between power and selected variables. Three filmed trials were recorded for each jumping variation, resulting in a total of 6 vertical jumps. This performance was preceded by the determination of weight, stature, and age. Film measurements, acquired from a Vanguard Motion Analyzer, enabled the determination of segmental and total body centers of gravity. Power in a standing vertical jump was then calculated by precise measurement of the rate of total vertical displacement of the center of gravity and body weight. Statistical procedures were computerized to calculate means, standard deviations, and *r* s for variables involving power, vertical displacement, anthropometric measures, and time. Correlations were used to ascertain the degree of association between these variables. Results indicated that standing vertical jump tests, as typically administered in PE, do not represent power. Body weight was the most influential factor affecting the development of power, whereas factors of displacement and time were nonrelated to this same variable.

359. MAZARNIC, Steve G. *The ancient Greek pentathlon and aspects of the Greek ideal.* M.S. in Physical Education, 1970. 92 p. (J. A. Lucas)

This study is a historical analysis of the pentathlon of Greek antiquity. It includes a brief history of the 5-fold event with major emphasis on the origin, order of events, methods used to possibly decide the winning pentathlete, winners of the ancient event, and the pentathlete himself. The study also contains a detailed historical investigation of each of the events on the program of the pentathlon--the stade race, long jump, discus throw, javelin throw, and wrestling event. The pentathlon and its competitors were a reflection, in part, of certain classic aspects of Greek idealism--the wholeness and perfection of the Greek gods, the educative ideal, and the harmonious beauty of Greek art.

360. BUTLER, Addie J. *Racial comparison of isometric force-time characteristics of college women.* M.S. in Physical Education, 1970. 54 p. (R. C. Nelson)

Tested was the hypothesis that a racial difference between black and white college women, favoring black Ss, existed in such factors as strength and shorter isometric contraction time of the flexed forearm. An on-line computer system was used to measure and evaluate components of the force-time curves resulting from the isometric contractions. Tendencies toward higher values in both amount and rate of tension development were found for black Ss. Data analysis indicated that these differences were nonsignificant and the hypothesis was not supported.

361. CARROLL, Peter J. *Maximal oxygen consumption of scuba divers.* Ph.D. in Physical Education, 1970. 90 p. (E. R. Buskirk)

In addition to the maximal oxygen consumption (Max VO$_2$) of scuba equipped divers, the following problems were examined: whether a reliable measurement of MaxVO$_2$ could be obtained using open-circuit scuba equipment; a comparison of MaxVO$_2$ when using open-circuit scuba units during underwater swimming with MaxVO$_2$ when performing bicycle ergometer exercise on land; a comparison of MaxVO$_2$ for tethered underwater swimming with MaxVO$_2$ for free underwater swimming; and a comparison of tethered underwater swimming breathing air, with tethered underwater swimming breathing 60% O$_2$ in N$_2$. The mean MaxVO$_2$ obtained for scuba diving was 2.98 L/min. (37.8 cc/kg.min.) for tethered underwater swimming, and 3.19 L/min. (40.8 cc/kg.min.) for free underwater swimming. A comparison of underwater swimming with bicycle ergometer exercise using open-circuit scuba techniques revealed significantly higher values for most variables for the exercise in air. Maximal oxygen consumption during free underwater swimming was significantly higher than MaxVO$_2$ during tethered underwater swimming. A comparison of tethered underwater swimming breathing air with tethered underwater swimming breathing 60% $O_2$ in $N_2$ showed significantly higher Max$VO_2$ values and a significantly longer swimming time when breathing 60% $O_2$ in $N_2$.

362. DILLMAN, Charles J. Muscular torque patterns of the leg during the recovery phase of sprint running. Ph.D. in Physical Education, 1970. 121 p. (R. C. Nelson)

High speed motion pictures were taken of 6 highly skilled runners as they ran at maximum velocity. These films were analyzed to determine kinematic movement patterns of the leg segments during recovery. Equations of motion were derived which related acting forces to the motion of the leg. These equations were solved for the resultant muscular torques about each of the 3 joint centers of the leg. The resultant muscular torque functions were analyzed and related to the kinematic displacement patterns of the leg segments. There was a general pattern of resultant muscular torque and, therefore, a consistent sequence of dominant muscular activity about each of the 3 segmental joints of the leg during recovery. The sequence of the types of muscular contraction about hip and knee joints during leg recovery was eccentric, concentric, ballistic or phase of negligible muscular force, eccentric and concentric. Effective muscular forces were applied through relatively small ranges of motion before, during, and after reversal of direction of the leg segments.

363. DUNN, Diana R. A study of the effects of economic fluctuation on local public recreation and private leisure spending in the United States. Ph.D. in Recreation and Parks, 1970. 142 p. (B. van der Smissen)

Time series data obtained from secondary materials were used, generally covering the period 1915 to 1965. Forty-two indicators of local public recreation were studied, including measures of personnel, finance, facilities, and attendance. Indicators (N = 31) of private leisure spending reflected measures of sport, art and culture, and entertainment and amusement. Economic indicators included measures of prices, markets, income, labor, and manufacturing. Static and dynamic regression analysis was undertaken using the stepwise autoregressive least squares option of a program which performs statistical analysis of single equation stochastic models, written for an IBM 360 - 67 computer at Pennsylvania State University. It was concluded that temporal variation, as measured by a 1-yr. distributed lag model, did not substantially increase explained variability in the private leisure spending variable indicators. While conventional wisdom has tended to equate economic fluctuation with variation in recreation and leisure spending, the study uncovered many exceptions to this presupposition. Differences were also found in the way that economic fluctuation has affected recreation in the public and private sectors; private leisure spending has been far more sensitive to growth rate change in the nation's economy than has local public recreation.

364. ENGERBRETSON, David L. The effects of physical conditioning upon the regulation of diabetes mellitus. Ph.D. in Physical Education, 1970. 150 p. (E. R. Buskirk)

The hypothesis that daily physical conditioning would result in more precise regulation of diabetes mellitus through increased cellular uptake of glucose by the working musculature was investigated. Ss were 5 diabetic young men, aged 17 to 21, receiving insulin therapy. The physical conditioning program consisted of 30 to 45 min. of interval running and calisthenics, 5 days a week, for 14 weeks. The average net caloric cost of each exercise session was 389kcal. During physical conditioning the average daily insulin dosage, average concentration of glucose in the fasting blood, qualitatively determined urinary glucose, and volume of the 24-hr. urine specimen decreased. No acetone was excreted in the urine. The average percentage of urine analyses which showed no glucose increased. The average amount of glucose in the 24-hr. urine specimen remained unchanged. All plasma cholesterol and FFA concentrations were within the normal range, but were slightly elevated during physical conditioning. No changes were found in average body weight, body density, sum of 10 skinfolds, or percentage of body fat. The average mile run time decreased, and the MaxVO$_2$ and WL-170 increased following physical conditioning. The original hypothesis that 14 wk. of physical conditioning would improve diabetic regulation in young men was accepted.

365. GENAY, Ann Skaritza. Improvement in motor skills of first grade children through outdoor education. M.Ed. in Recreation, 1970. 70 p. (B. van der Smissen)

The effect of outdoor education experiences involving nondirected motor activity on the development of motor skills was determined. During this 7-wk. study, control and experimental groups, each 13 first graders, were taught the same subject matter, but the experimental group received more outdoor education experiences. To assess motor skill development, a set of 4 motor skill tests (balance, jumping, running, and throwing and catching) were administered pre and post the experiences. In the skill of balance there was a significant difference between the experimental group's average achievers and the control group's average achievers, with the experimental group making the greater gain in this skill. On the criss-cross jump test, the control group's low achievers were superior to the experimental group's low achievers; no other groups showed any significant difference in the skill of jumping. On the zig-zag run and throw and catch tests, there were no significant differences between groups.

366. GOLDFUSS, Arnold J. A temporal and force analysis of the crawl arm stroke during tethered swimming. M.S. in Physical Education, 1970. 80 p. (R. C. Nelson)

The purpose was to measure the time taken to execute selected phases of movement of the crawl arm stroke above and below the water, and to quantify the temporal changes that occurred during each of these phases over a 2-min., all out, tethered swim performance. Analysis also included the measure of maximum force and determination of its point of occurrence in the stroke cycle. Results, based on data from 2 experienced swimmers, indicated that the time taken to complete an arm stroke cycle increased and the magnitude of force decreased with time. The nature of these changes, however, was not consistent from day to day, and differed for each swimmer.

367. HAWK, Jeanne M. The relationship between attitude and participation in physical activity of eighth grade girls. M.Ed. in Physical Education, 1970. 55 p. (D. V. Harris)

An attitude scale and a background questionnaire were constructed by the investigator and procedures were established for recording and assessing physical activities of the 116 Ss. Reliability of the attitude scale was .88 and all items were consistent internally with the exception of 1. A highly significant difference in participation levels of high and low participation groups was found. The high participation group differed at the .05 level from the low participation groups on total attitude scale scores. All Ss had favorable attitudes toward physical activity but the high participation group had significantly more favorable attitudes. A positive relationship between attitude and participation was found. Other factors that affected participation in this study were: educational background of the head of the household taking part in available physical activities, and socioeconomic status.

368. HUMPHREY, Robert A. A comparison between the crouch sprint start in track and an experimental semi-standing start in performance time over a distance of 10 yards. M.Ed. in Physical Education, 1970. 39 p. (E. A. Gross)

Fifteen male members of a physical conditioning class participated in the experiment 3 times a week for 5 weeks. Ss were untrained, i.e., they did not have any previous SHS or college varsity track experience. Conclusions showed that no statistically significant difference was found in the mean sprinting times for the 10-yd. dash of untrained college male students in which a crouch and an experimental semi-standing start, which utilized hand grips, were used. A statistically significant difference was found among the Ss' abilities in sprinting, and among Ss' interaction with treatments. Rank orders of the Ss, used to illustrate individual differences within the groups, using the crouch and the semi-standing starts were found to be very similar, regardless of sprint method used.

369. HUTSLAR, John Lee. The relationship between selected personality traits and bicycle ergometer endurance. M.S. in Physical Education, 1970. 94 p. (C. A. Morehouse)

The purpose was to determine if selected personality traits were characteristic of Ss (N = 15) who were able to ride a bicycle ergometer longer when the individual work loads were adjusted to compensate for the physiological differences among Ss. Each S completed 3 practice rides, 3 equating rides, and 3 endurance rides, and 3 personality tests 16 PF Questionnaire, Guilford-Zimmerman Temperament Survey, and the Endurance and Achievement Scales of the Edwards Personal Preference Schedule). Heart rate-work load graphs, based on the equating ride performances, yielded an individual work load for S which was used as the resistance for the endurance rides. Correlation analysis of various personality factors and riding times indicated that these personality tests cannot be used to predict individuals who exhibit a potential for superior endurance performance.

370. HUTSLER, Robert E., Jr. The validity and reliability of a rating scale of perceived exertion. M.Ed. in Physical Education, 1970. 52 p. (J. S. Skinner)

Male undergraduate Ss (N = 16) from required PE classes were tested on a bicycle ergometer over a 2-3 wk. period. In Borg's study, a stepwise or progressive procedure of selecting work loads on the bicycle ergometer to test an individual's ability to rate "how hard" the exercise was for him, was used. In order to test the validity of the rating scale, isolated work loads were administered at random, and those ratings were compared to the progressive test ratings at the same work loads (300, 450, 600, 750, and 900 kgm). Two trials for each variable (ventilation, tidal volume, oxygen consumption, heart rate, breathing frequency, and rating of perceived exertion) were used to examine the reliability of both types of procedures. There was no significant difference in physiological and perceptual data obtained with 2 methods of selecting work loads; namely, a progressive method (increasing exercise to maximal effort) and a random method (different work loads separated by rest periods). Data collected were shown to be reliable.

371. JOHNSTON, Nancy M. An investigation of the values of campers who have had a resident camping experience. M.S. in Parks and Recreation, 1970. 404 p. (B. van der Smissen)

Social values of campers participating in a resident camping experience were investigated during the summer of 1968 through the use of a situation-response inventory, called the Camp Situation Inventory, which was constructed and administered at the beginning and end of camp to 1,384 children aged 9-12 in 47 American Camping Association camps in Pennsylvania. The CSI was found to be reliable; however, the validity, as determined by correlation with a counselor's rating scale and a sociogram, could not be established conclusively. The 6 clusters of values characterized by camp literature were reviewed as a basis for this investigation. Assessed were social values only and Accepting Responsibility, Showing Respect and Concern for Others, Getting Along with Others, Making Friends, Working Together, Giving Service, and Exhibiting Democracy were included. Differences among campers of various characteristics at the beginning and end of camp were analyzed. The overall social value scores, as well as scores on the individual social values, were generally lower at the end of camp than at the beginning. Boys and girls differed from each other in their level of development of social values, with girls rating higher. Change did occur during the camp experience, with the nature of this change varying among campers of the various characteristics analyzed.

372. LAGASSE, Pierre P. The interrelationships among maximum static strength, movement time, muscular torque, angular acceleration and angular velocity. M.S. in Physical Education, 1970. 74 p. (R. C. Nelson)

Each of the 20 Ss was tested 5 times daily on 2 days for his maximum static strength. He also performed 7 nonresisted elbow flexion speed trials on each of the test days. The volume of his forearm and hand segment, which was determined by a water immersion method, was used to calculate limb mass. Data for movement time, angular acceleration, and angular velocity were all extracted from the film taken during the speed test. Muscular torque, the resultant force moment produced by the muscles about the axis of rotation, was calculated from measures of mass, limb length, and angular acceleration. Maximum static strength and speed of a nonresisted movement were found to be independent ($\underline{r} = -.39$). Initial angular acceleration was found to be highly dependent ($\underline{r} = -.87$) upon the initial muscular torque applied. Results also indicated that the amount of force that was exerted statically was a poor indicator of the initial muscular torque that was applied in a dynamic situation.

373. MANJONE, Joseph A. The men's intramural athletic program at The Pennsylvania State University: 1948 to 1969. M.Ed. in Recreation and Parks, 1970. 92 p. (J. A. Lucas)

This study relates how and why the intramural program was started; activities that comprise the program; factors that have affected the program; intramural experiences of the intramural staff; and the present status of men's intramurals at Penn State. Basically, this study presents an administrator's view of the Penn State intramural program, as experiences and won-lost records of the intramural participants are not included.

374. McINTYRE, Thomas D. A field experimental study of cohesiveness status and attitude change in four biracial small sport groups. Ph.D. in Physical Education, 1970. 202 p. (R. C. Nelson)

Flag football was the activity for the interaction of 23 black boys from an urban JHS with 22 white boys and 1 black from a suburban school. Seven observers recorded significant interactions between and within the 4 biracial sport groups over a 5-wk. period involving 20 contact sessions. Quantitative measures of sociometric choices and cohesiveness were used to validate observational measures. Upon completion of the experimental treatment, attitudes on ethnicity were assessed by means of the Own Categories procedures. The attitudes of 46 experimental Ss were compared to an equal number of control Ss. Definite group structures with differentiated statuses emerged as the biracial sport groups interacted repeatedly. The black boys were highest in the hierarchial structures on the variables of leadership and athletic prowess. Color was not as salient when choosing friends; i.e., the contact served to weaken the color norm as a classification for selecting friends. Racial attitudes were not changed significantly by the experimental treatment, although there were indications of a more positive effect upon white Ss than upon their black counterparts. Winning and team cohesiveness were strongly related; however, there was no evidence that highly cohesive teams produced more favorable attitude change than less cohesive teams.

375. MILLER, Doris I. A computer simulation model of the airborne phase of diving. Ph.D. in Physical Education, 1970. 166 p. (R. C. Nelson)

A digital computer model capable of simulating the airborne phase of nontwisting dives in the pike and layout positions was developed and validated. In the model, the diver was portrayed as a system of 4 interconnected rigid segments whose inertial properties were defined by a mathematical model of the body. Equations of motion of the diver while free in the air were derived. The translational portion of the analysis involved the application of the laws of particle motion, while the principle of angular momentum conservation was applied to the 4-link system to determine the rotational component of the movement. A computer graphics program was developed to illustrate the results of the simulation model in 3-dimensional perspective. To validate the model, experimental data were collected for comparison with the simulated results. Cinematographic techniques, including a 3-dimensional film analysis method, were used to obtain data for selected forward dives performed by 6 adult male divers. Evidence from the validation phase of the study indicated that the computer model simulated the airborne phase of nontwisting pike and layout dives with acceptable accuracy.

376. MILLER, Eldon L. The nature trail as an education tool. M.Ed. in Recreation, 1970. 65 p. (B. van der Smissen)
The study compared the effectiveness of the nature trail experience with the traditional textbook oriented classroom approach in teaching 100 fifth and sixth grade children selected natural science and conservation concepts. Six trail experiences of 45 min. each were participated in by the experimental group. The control group in the classroom used visual and other aids. Evaluation of achievement changes was by selected questions from the Science Batteries of the Stanford Achievement Test and the Metropolitan Achievement Test. There were no significant differences between the control and experimental groups on the tests as a whole; however, there were some significant differences in certain aspects.

377. PEHRSON, Bill T. The effect of a heavy resistive exercise program on precision of movement. M.S. in Physical Education, 1970. 112 p. (B. H. Massey and R. C. Nelson)
One group (N = 13) worked on development of the shoulder girdle and upper extremities through weight training. Another group (N = 13) stayed relatively clear of upper body work through a program of soccer. These 2 groups practiced once each week throughout the experimental period on the motor performance tests. A third group (N = 13) was limited to only weight training for the upper body, with no practice on motor performance tests during a 5-wk. training period. Groups were measured before and after the treatment period on girth and strength measures and on performance in the precision of movement tasks. The 3 groups were similar prior to the treatment period on all 14 variables considered. Both weight training groups experienced significant changes in strength and upper arm girth as a result of training with heavy resistive exercise. These mean changes for the weight training groups were significantly greater than the mean changes of the soccer group. Statistical analysis of the data revealed that no significant differences in mean changes on motor performance existed among the groups.

378. SCHEUCHENZUBER, H. Joseph, Jr. A biomechanical analysis of four backstroke starts. M.S. in Physical Education, 1970. 89 p. (R. C. Nelson)
Selected times and mechanical aspects of 4 competitive backstroke starts were compared to determine the relative effectiveness of the starts and any reason for variation among the 4. During both the pre- and post-training tests, 40 starts were performed by each of 10 Ss. Starts were divided into groups of 10 starts from each of the 4 start types. Data obtained cinematographically were analyzed by means of a time and motion film analyzer. Appropriate statistical procedures were employed for the necessary comparisons and these results were displayed graphically as well as in table form. The paths of body center of gravity as well as various times and angles were calculated and graphically presented utilizing the computer. It was determined that the start now accepted for Olympic and A.A.U. competition was significantly less effective than the standard collegiate start (N.C.A.A.) or either experimental standing start (20- or 30-inch handgrips). No significant variation was found to be present among the last 3 starts.

379. SILLS, Diane Muller. A work activity analysis of the professional recreation personnel in selected state mental hospitals in Pennsylvania. M.S. in Recreation and Parks, 1970. 201 p. (B. van der Smissen)

The purpose was to analyze the functional roles of the 32 therapeutic activities workers who completed a time analysis for 2 weeks and a background questionnaire. Recorded work activities were grouped into 11 major classifications and 48 subcategories. The frequency, total number of min., range, mean duration of time, and per cent of total time were compared among 4 TAW categories. A jury of therapeutic recreation specialists rated the subcategories as to the level of professional preparation and experience necessary to efficiently perform the various work activities; ratings were compared with findings of the work activity analysis. The personnel spent the greater percent of time in the major classifications of helping patients, administration, and conferences and meetings. These professional personnel were found to be performing some work activities that could be performed by a secretary or recreation aide. It was the amount of time spent doing a particular work activity, rather than the task itself, that seemed to determine the level of work responsibility.

380. SMITH, Lawrence M., Jr. The development of a projective test for determining an elementary school child's perception of his teacher with specific application to resident outdoor education. M.S. in Recreation and Parks, 1970. 157 p. (B. van der Smissen)

A modified Thematic Apperception Test, a picture story response test, was developed using 4 sets of teacher-pupil pictures to assess the child's perception of the teacher in 3 different roles: teacher, disciplinarian, and friend. After piloting, the instrument was then administered to 4 sixth grade classes who participated in a 1-wk. resident outdoor education experience at Camp Greentop, Maryland. The pretest was administered before camp, and the posttest was given to 2 of the classes immediately following their return from camp, and to the other 2 classes, a week later. Significant change in perception of the teacher in the disciplinarian role factor was found in the boys of 2 classes and the girls of 1 class. No significant changes were found in the teacher or friend role factors. It was concluded that the test of perception was valid, reliable, and sufficiently sensitive to measure change in a child's perception of the teacher. A 5-day resident outdoor education experience can change a child's perception of the teacher.

381. REID, Dianne A. The effect of the use of the videotape recorder as an aid in teaching the volleyball serve. M.Ed. in Physical Education, 1970. 54 p. (H. M. Lundegren)

Determined was whether there was a difference in volleyball serving ability at the end of a 5-wk. instructional period between a group of 31 college girls taught how to serve by means of a teaching method using the videotape recorder and another group of 25 girls taught the same skill by conventional means. Both groups were given a Volleyball Power Serve Test as a pretest. All classes met for 1 hr., 3 days/wk., but Ss in the experimental class were taped during only 1 of these lessons. The plan for taping was as follows: the experimental class was divided into 3 groups, A, B, and C. A met on Saturdays for 3 wk. to be videotaped and was further divided in 4 groups of 3. Each group of 3 participated in a prefilming practice, a filming practice (6 serves), a viewing of the tape of the filmed practice during which corrections were given by the investigator, and a postfilming practice. Total time spent on the serve in 1 session for each girl was 15 min. The control class also spent 15 min./wk. practicing the serves in a similar rotation. A posttest indicated that although both groups improved significantly in serving ability there was no difference between the groups.

382. ROYER, Donald. A comparison of the maximal oxygen intake of educable retarded children and children of low normal intellectual ability. M.S. in Physical Education, 1970. 55 p. (C. A. Morehouse)
The performances of 162 children, aged 6 to 16 yrs., with IQs ranging from 50 to 114, were evaluated by progressive walking tests on the treadmill. Each child underwent 1 of 3 methods used to determine their Max $VO_2$: Method A, a 2-min. continuous test; Method B, a 3-min. continuous test, and Method C, a 4-min. intermittent test. Each child was tested only once. A 2-way ANOVA and Duncan's New Multiple Range showed no significant difference in the $MaxVO_2$ between educable retarded children and children of low normal intellectual ability. Values obtained were comparable with previous studies in which Ss were normal children. Significant differences were found among age groups when $MaxVO_2$ values were expressed in L/min., but there were no differences among age groups when $MaxVO_2$ was expressed in ml/kg. min.

383. STOTHART, J. Peter. A biomechanical analysis of static and dynamic muscular contraction. Ph.D. in Physical Education, 1970. 100 p. (R. C. Nelson)
Static and dynamic elbow flexion performances were tested for 22 male university students in 4 test sessions over a 4-wk. period. Force curves were recorded and analyzed for static performance. Three inertia-relative loads were applied to dynamic performances from which were recorded acceleration, velocity, and displacement curves. Both static and dynamic tests were conducted in the horizontal plane with the upper arm abducted to a position even with the shoulder. The elbow position for the static test was at angle of 170°, which was the starting position for the dynamic test. Basic data for simultaneous acceleration and velocity variables were extracted from performance curves at 7 points through the movement (15°, 30°, 45°, 60°, 75°, 90°, and 105° from the starting position). From these data, secondary variables were derived including torque, power, momentum, energy, impulse, and work. Correlational analysis indicated that static and dynamic force are moderately related in early phases of movement; dynamic torque is highly related to velocity, and in addition both static torque and maximum rate of static force development are moderately related to velocity; and, loading the muscle with multiples of the natural moment of inertia of the forearm does not change existing relationships between static and dynamic characteristics of muscle performance.

384. WARD, Leo J. The effects of the squat jump exercise on the lateral stability of the knee joint. M.Ed. in Physical Education, 1970. 50 p. (C. A. Morehouse)
The study was conducted over a 7-wk. period and included 52 untrained volunteer Ss who were members of 3 handball classes. The knees of each S were evaluated for lateral deviation in both abduction and adduction at

the beginning and at the conclusion of the experiment. On the basis of the initial measurement of abduction of the right leg at the knee joint, Ss were assigned to 1 of 2 equated groups. Experimental treatments were then randomly assigned to the groups. The experimental group (N = 27) performed 80 squat jumps a day, 3 days/wk. for the 7-wk. period, as well as participating in the regular handball activity. The control group (N = 25) participated solely in the handball activity for the same period. Results indicated that both groups were similar in lateral stability of the knee joint.

385. ZWIREN, Linda D. The accuracy of skinfold prediction equations in overweight college women before and after a moderate exercise program. M.S. in Physical Education, 1970. 53 p. (J. S. Skinner)

Five of the existing prediction equations for women were tested for accuracy in determining % body fat in overweight college women as determined by underwater weighing. A group of 10 girls was exercised for 8 wk. and another 4 girls served as control Ss. Body weight, skinfold thickness, and % body fat were measured at the beginning and end of the experimental phase. In the exercise group, 2 equations were accurate in determining % body fat prior to the experimental phase. After 8 wk., the experimental group had a significant weight loss. Three equations were accurate in determining % body fat after the experimental phase. There was no change in % body fat as determined by underwater weighing. All of the 5 equations, however, showed a significant decrease in % body fat at the end of the experimental phase. In the control group, 3 equations were accurate in determining % body fat with the beginning measurements. The same 3 equations were accurate in determining % body fat with the final measurements. A significant weight loss was reported in the control group; there was no change in % body fat as determined by underwater weighing on any of the 5 equations.

## University of Pittsburgh, Pittsburgh, Pennsylvania (M. A. Sherman)

386. EDWARDS, Marigold A. A study to determine the effects of training at predetermined heart rate levels in college women. Ph.D. in Physical Education, 1970. 167 p. (B. J. Noble)

Twelve Ss, aged 17 to 21 years, participated in the treadmill training program 15 min. daily for 4 wk. Six Ss (Group 1) trained at a heart rate of 125 beats/min. and 6 Ss (Group 2) at a heart rate of 145 beats/min. Treadmill speeds were regulated during each training session so that the work intensity remained at the predetermined heart rate level. Group 1 made significant improvements in the time required to elicit a heart rate of 180 beats/min. and maximal oxygen intake measured during an all-out treadmill run, while Group 2 significantly increased total run time and maximal oxygen intake. A heart rate of 125 beats/min. provided sufficient, but not minimal, stimulus for training effects in sedentary young females.

387. STAMFORD, Bryant A. The heart rate response to a three-minute, moderate walk following varied stimulus conditions. M.A. in Physical Education, 1970. 50 p. (B. J. Noble)

Male college students (N = 13), aged 18 to 24 years, completed 8 experimental testing sessions. Each experimental session consisted of a control period and an experimental period. The control period involved 12 min. of moderate walking (3.0 miles/hour) and the experimental period involved 12 min. of moderate and/or fast walking (4.5 miles/hour). The final 3 min. of each period was a standardized moderate walk, and heart rate data obtained during these final 3 min. were compared to reveal effects of the experimental treatments. Results showed that whenever 2 or 3 fast walks preceded the final moderate walk, there was a significant increase in the heart rate response to the moderate walk. One fast walking element introduced before the final moderate walk significantly increased heart rate response to that walk only if it immediately preceded it.

**Purdue University, Lafayette, Indiana** (C. J. Widule)

388. DAVIS, Marcella. The effect of object size and object speed on the visual perception of directionality by seven-year-old children. M.S., 1971. 75 p. (H. M. Smith)

Seven-year-old boys and girls (N = 40) selected at random from Tippecanoe County School Corp. second-grade rosters responded to a 27-item optical array. Optical items consisted of 3 different-sized spheres travelling toward S at 3 different speeds, 1 given object at 1 given speed at a time. Ss made a judgment about the direction the object would take (right, center, or left) by pushing the appropriate directional button on a control box. Performance was scored by recording the amount of time remaining for object-flight after S made the directional response. Errors in directional response were recorded as zero time remaining. Item presentation (size X speed X direction) was randomized. Results demonstrated that speed of object affects performance irrespective of object size.

389. ELLIOTT, A. R. The development of an instrument for the evaluation of public recreation programs. Ph.D., 1969. 166 p. (H. D. Corbin)

An instrument for measuring and for subsequent evaluation of public recreation programs was developed. Fifty professionals, 25 educators and 25 administrators each, rated the 252 items contained in the questionnaire prepared by the investigator. Data were analyzed using factor analysis and multiple regression techniques. Regression equations were developed for each of the following factors: total, program, personnel practices, records and reports, administrative manual, recruitment of personnel, organizational structure, goals and objectives, cooperative operations agreements, planning of areas and facilities, participant program relationships, program availability, and program content. It was concluded that the traditional categories were not substantiated by scientific means as evidenced by the factor structure, the technique developed by Ismail, et al, is applicable to the area of recreation, and the magnitude of beta weight should indicate the relative importance of the items involved in the final instrument, since the scale associated with the items is the same.

390. GOLDSTEIN, Barbara. Self-concept of movement in the performance of selected jumping tasks. M.S., 1970. 53 p. (H. M. Smith)

College women (N = 25) chosen at random from population enrolled in voluntary PE classes performed 3 different jumping tasks and responded to an adaptation of the Smith-Clifton Perception Checklist after performing each of the jumping tasks. Order of jumps was rotated with each S assigned sequence at random. ANOVA (random blocks design) demonstrated no significantly different self-assessments by Ss regarding their own performance of each of the 3 jumping tasks.

391. KREIBEL, Eugenia. The effects of reducing, masking, and/or delaying the auditory cues inherent in a task on the performance of that task. M.S., 1970. 61 p. (H. M. Smith)
Female college students (N = 36) performed a motor task under each of the 3 experimental conditions. Baseline performance was established under "normal" auditory feedback condition. Ss were assigned at random to 1 of 3 groups, each group performing under different sequences of experimental conditions. A randomized complete block design was used to treat the data. The F-values were significant ($P < .05$).

392. MONTGOMERY, Anne. The effect of visuo-motor training on figure ground perception. M.S., 1970. 48 p. (H. M. Smith)
Four- and five-year-old boys and girls (N = 30) were assigned at random to 3 groups. One group served as a control, the other groups were each exposed to experimental conditions. Baseline performance was established for all Ss prior to treatments by means of the Karp-Konstadt CEFT. Experimental condition for 1 group was a 10-wk. training period on a visuo-motor task. Experimental condition for the other group was a visual task without motor response for same time period. ANOVA demonstrated no differences among groups in performance on posttest (Karp-Konstadt). All groups, including control, improved significantly on Karp-Konstadt. Visuo-motor training group demonstrated significantly better performance on visuo-motor task.

393. PIKE, Nancy Lou. The use of a model to determine the moments of inertia of the human body. M.S., 1970. 44 p. (C. J. Widule)

## University of Rhode Island, Kingston, Rhode Island (R. Sonstroem)

394. JAWORSKI, Chester S. The comparison of athletes and nonathletes in physical and academic performance on the secondary level. M.S. in Physical Education, 1970. 40 p. (R. Sonstroem)
Physical fitness and academic performance comparisons were made between interscholastic athletes and nonathletes from the same school in 3 R.I. SHSs. Physical fitness was measured by the Fleishman Basic Physical Fitness Test. Athletes at the 3 SHSs attained significantly higher fitness indices than nonathletes of the same school. Athletes obtained higher quality point ratios than nonathletes in each school. This difference as significant only for 1 of the schools ($P < .05$). When quality point ratios obtained from all SHS courses taken by a student were correlated with extent of SHS athletic experience, 2 of the 3 coefficients were positive and significant ($P < .05$).

395. MALVINNI, Benjamin. The relationship between physical ability and cognitive performance in high school males. M.S. in Physical Education, 1970. 47 p. (R. Sonstroem)
Scores on the Fleishman Basic Physical Fitness Test were correlated with Otis IQ scores and with academic quality point ratios (QPR) for 266 students from 3 SHSs in R.I. The rs for Fitness Index (FI) and IQ scores were .08 and .08 for the 2 schools having IQ measures. The rs for FI and QPR ranged from -.21 to .17. With IQ controlled, partial rs between QPR and FI were -.01 and .15. Conclusions of this study were that physical fitness as measured by the Basic Physical Fitness Test is not related to cognitive factors measured by the Otis Gamma Test or by scholastic grades.

## **Sacramento State College, Sacramento, California** (D. R. Mohr)

396. ATHON, Harold G. Maintenance, issuance, and inventory of football equipment at El Camino High School. M.A. in Physical Education, 1970. 77 p. (H. H. Wolf)
This study was done to develop a handbook for issuance, maintenance, and inventory of football equipment at El Camino HS, Sacramento, California, to serve as an aid for the football coach in carrying out these responsibilities. Existing methods being used by various universities, colleges, and SHSs were studied. Other school districts comparable in size were included. It was found that the issuing, maintenance, and inventory of football equipment was an individual school matter, and there were definite differences in protective equipment. Local laundries were not equipped to handle the cleaning problems of athletic clothing. Although most athletic manufacturers guaranteed their products, most manufacturers of protective football equipment would not be held responsible for shrinkage or fading of clothing. In most SHSs the head coach was the equipment manager, inventory taker, and maintenance man.

397. BACH, Richard R. A brief history of interscholastic baseball at Rio Linda Senior High School from 1963 to 1969. M.A. in Physical Education, 1970. 196 p. (H. H. Wolf)
Since 1962, no one had written about the history of baseball at Rio Linda SHS, Sacramento, California. No records had been kept of individual and team feats on the baseball diamond. Data were gathered using primary and secondary sources, such as school newspapers, annuals, baseball scorebooks, student body minutes, athletic directors' records, local newspapers, and interviews with administrators, coaches, and players. The interscholastic baseball program was an adequate one. The equipment, facilities, and safety and health standards have been of the quality which put welfare of the participants above all other considerations. Qualified and competent coaches have been provided, and the program has been supervised by well-qualified administrators. Coaches were not hired or fired in terms of won-lost records. The school has not had a championship team in baseball, but the community has supported the program.

398. BELCASTRO, Joseph A. A brief history of intercollegiate baseball at College of the Siskiyous. M.A. in Physical Education, 1970. 159 p. (H. H. Wolf)

This study was done to develop an accurate and complete history, insofar as the information was available, of the intercollegiate baseball program at the College of the Siskiyous, California, from its inception through the 1969 season. Sources included interviews, correspondence, college files, personal files, scorebooks, college catalogs, books, scrapbooks, master's theses, microfilm, and newspapers. The following conclusions were drawn: Coach John Mazzei is a very conscientious person and a great teacher of baseball; the weather was probably a severe handicap to the program, compared to other colleges in the Golden Valley Conference; most athletes playing baseball at the college for the first time had limited backgrounds in baseball; in spite of many adverse factors, the varsity baseball program has been a satisfactory one; the future of the baseball program at this college is questionable, because of the increase in outside recreational interests of the students.

399. BIGLER, Alexander B. The recreation planning process. M.A. in Recreation, 1969. 116 p. (J. R. Needy)

This study was done to develop a definition of the recreation planning process and to provide the recreation planner with a general methodology for the conduct of recreation planning. Recreation planning concepts basic to the recreation planning process were described. The study should prove useful in meeting the needs of a variety of clients, whether in the form of a political body, individual, or corporate group. Additionally, the methodology may be applied within any type of environment--recreation area, park, or the mall of a commercial shopping center designed to encourage leisurely experience in daily urban activities. A review of the literature in the fields of recreation and planning theory was conducted. It was concluded that there are still many problems in the field of recreation in need of further research before the planning act can be relied upon to provide a range of alternatives for recreation that will relate satisfactorily to the achievement of desired ends. The implication to the recreation planning process is that the issue of uncertainty and gaps of knowledge about ways to achieve certain ends should be reflected in alternative choices in the form of proposed research statements.

400. BRAIO, Andrew J. A statistical study of the frequency and type of base hit occurrences on every possible ball and strike count. M.A. in Physical Education, 1970. 72 p. (H. H. Wolf)

This study was made of the following Capital Valley Conference varsity baseball teams in the greater Sacramento, California, area: Bella Vista, Del Campo, El Camino, Encina, La Sierra, Mira Loma, Rio Americano, and San Juan SHSs. An observer from each conference school recorded data on his teams during the 1966 league season. The professional baseball axiom, that base hits occur most frequently when the batter is ahead in the count, also applied to the 1966 Capital Valley Conference SHS season. When hitters were ahead in the count they had the highest batting and extra-base averages. The counts which accompanied the best batting averages were 2-1 and 2-0; the counts which accompanied the best extra-base hit averages were 2-0 and 2-1.

401. BROCK, Sandra. Handbook of indoor activities for golf and tennis in secondary school physical education programs. M.A. in Physical Education, 1970. 158 p. (B. Bartee)
Because PE teachers are often faced with the dilemma of what to do with their classes when outdoor activity is not possible, this resource handbook was prepared. It is a collection of methods and materials for teaching indoor golf and tennis to boys and girls in secondary school. Data were accumulated primarily through extensive research through books, articles, and unpublished materials on golf and tennis. Each chapter includes activities for large indoor areas, and activities for areas of limited space. There are innumerable articles and books containing materials to aid teachers in preparing effective indoor lessons in various sports. These, however, have to be collected, analyzed, and categorized so that they are easily accessible when the rainy day occurs.

402. FOSTER, Michael G. An evaluation of the physical education curriculum of South Fork High School based upon the opinions of graduates concerning their leisure-time activities. M.A. in Physical Education, 1970. 60 p. (H. H. Wolf)
Opinions were solicited concerning which activities should be included in the program and the value of activities presently offered. Questionnaires were sent to 350 graduates, whose names were selected at random from lists of graduates from 193[illegible] through 1967. It was concluded that outdoor activities were very popular and were becoming more popular. Individual sports were more popular than team sports, for leisure pursuits; perhaps there was an overemphasis on team sports in the program. None of the 6 most popular leisure activities were currently offered in the HS PE program. Swimming was the most popular leisure activity. The majority of Ss felt that most of their SHS experiences in PE were of little value to them after they graduated. The rural HS must strive to update its PE program to meet the future leisure-time needs of its graduates; a swimming pool is the most necessary single type of facility.

403. GUEST, Mary S. An analysis of selected girls' secondary intramural and interscholastic programs in the state of Missouri. M.A. in Physical Education, 1970. 80 p. (D. R. Mohr)
This study surveyed the girls intramural and interscholastic programs in randomly selected SHSs in Missouri during the school year 1967-68. The extent and nature of the programs and problems encountered by the schools concerning their intramural programs were identified. In a structured questionnaire, 30 questions were categorized into general and specific information. The stratified random sampling technique provided a representative sample in terms of school size. It was concluded that, if intramural sports were to make a definite contribution to the health and education of students in the class S and class M SHSs of Missouri, it would appear that school authorities needed to place definite emphasis on improved program content. There was not sufficient evidence to support the hypothesis that girls intramural programs had become nonexistent, nor did they play minor roles to the girls interscholastic programs.

404. HOVER, Gary M. A follow-up study of the recreation management majors at Sacramento State College from 1954 to 1969. M.S. in Recreation, 1970. 110 p. (J. R. Needy)

This study was done to discover to what extent recipients of a bachelor's degree in Recreation Management from Sacramento State College had achieved selected vocational goals and to evaluate the effectiveness of the Recreation Management curriculum in developing competencies in certain areas considered necessary for successful job performance with recreation agencies. A questionnaire was administered to 60 women and 82 men who graduated between 1954 and 1969. The 2 of the 8 selected vocational goals rated to be most important by the respondents were "to earn a suitable salary," and "to secure suitable employment." The overall effectiveness of the professional curriculum in the provision of opportunity to achieve the competency criteria established by the Accreditation Project Committee of the Federation of National Professional Organizations for Recreation was judged by the respondents to be between excellent and good.

405. KENNEY, Joseph D. The development of an inclement weather program for boys' physical education at Sutter Union High School. M.A. in Physical Education, 1970. 84 p. (H. H. Wolf)

The purpose was to evaluate and select a number of games to be used as the basis of an inclement weather program in boys PE at Sutter Union HS California. Data were selected from PE manuals and other selected written sources. Games and activities that are combative in nature were found to be best suited for this type of program. The greatest significance of the study was found to be in the fact that the organization and supervision of a successful inclement weather program is apparently a vital factor for pupil morale in a school.

406. KINNEY, Patricia S. Competencies needed by beginning women physical education instructors in California. M.A. in Physical Education, 1970. 72 p. (D. R. Mohr)

An attempt was made to discover the competencies needed by beginning women PE teachers in California SHSs. A questionnaire was constructed which contained items related to personal competencies, and competencies relating to others, the profession, the community, teaching of activities, and class organization. There were also questions concerning the use of nontraditional ideas and the extent of the curriculum. The questionnaire was mailed to over 400 full-time instructors in 201 California SHSs. Of the 64% return, some agreement was shown among the instructors as to the relative importance of items. There was an indication that all of the competencies listed had some value for beginning teachers. Some were rated absolutely necessary by a large percentage; many others were considered very important. Data indicated that most of the girls PE departments were operating in a traditional manner. A great variety of sports were being offered.

407. LEVINE, Phyllis S. An investigation into the determinants of career choice of dental hygienists. M.A. in Health and Safety Studies, 1970. 59 p. (R. A. Meister)

The intent was to investigate the reasons why women entered the field of dental hygiene; discover the time of first consideration and final decision to enter the field; identify those persons who exerted the major influence on choice of the career; and assess the degree of satisfaction that the dental hygienist derived from her career choice. A questionnaire was given to 134 dental hygiene students at 2 junior colleges and 2 universities, and to 103 registered dental hygienists who were members of the Northern California State Dental Hygienists Association. The major reasons that women entered the field were that they sought a lifelong career which would coordinate well with family life; they liked contact with people; and they liked the field of science. The typical dental hygienist was attracted to the field late in her school career, and the major person influencing her choice was her family dentist. An overwhelming majority of dental hygienists expressed a high degree of satisfaction with their choice of career.

408. LUBIN, Mary L. The value definitions of words of illness among college students. M.A. in Health and Safety Studies, 1970. 111 p. (F. B. Benell)

This study measured acceptability attitudes and descriptive attribute rankings of 12 selected words of illness as held by 455 undergraduate students at Sacramento State College. A paired comparisons test of 12 words of illness was administered. The acceptability of each word of illness was thus obtained and presented as weights on a scale segment of the psychological continuum. At the same testing time, Ss constructed attribute ranking scales for 5 attributes of each of the same 12 words. The rank order scales were analyzed for the significance of the coefficient of concordance among Ss' ranking of the attributes. A personal and family health and social history for S was obtained at the end of the testing session with a questionnaire, and the data were analyzed according to sex, social class, religious heritage, and cultural background. Acceptability attitudes of the Ss spanned a wide range on the psychological continuum, and all attribute rank order scales for the tested words of illness had statistically significant levels of agreement. Little overall difference was evident in attitude acceptability or attribute ranking by variable. Incidental findings included a statistically adequate and also practical method of student subject selection, and an unexplained, atypical reaction to the word, death, when used as an attribute.

409. MCCARTHY, Neil N. An examination of the results of one method of teaching free throw shooting form. M.A. in Physical Education, 1970. 56 p. (H. H. Wolf)

The purpose was to evaluate a method of teaching free throw shooting form, with the major emphasis on the relationship of body alignment to execution. Data were obtained by recording and comparing a total of 30,000 free throws taken by a group of 30 ninth grade boys. The subjects were placed in experimental and control groups of 15 each. Free throws taken by the experimental group prior to the instructional period were compared with free throws taken after instruction. For the control group, no instruction was given, and free throws before and after the period were compared to measure the results of pure repetition. The body alignment method of teaching free throw shooting form increased free throw shooting accuracy. Pure repetition, without instruction in fundamental body alignment and form, did not increase free throw shooting accuracy.

410. MCKELLAR, Dianna J. The effects of a weight training program on physically underdeveloped high school girls. M.A. in Physical Education, 1970. 401 p. (D. R. Mohr)

This experiment was conducted to develop an individualized weight training program for physically underdeveloped girls at Galt Union HS; administer this program to a test group of these girls; compare the results of this program with those of a physical fitness exercise program; and assess the advisability of incorporating this weight training program into the HS girls PE curriculum. A total of 86 girls participated in the experiment for 6 weeks. The experimental or weight training group improved significantly ($P < .01$) on the standing broad jump, bent knee push-up, and bent knee sit-up events of The Physical Performance Test for California. The control or physical fitness exercise group improved significantly ($P < .01$) on the standing broad jump and bent knee sit-ups, but not on the bent knee push-ups. The weight training group improved significantly more ($P < .01$) than the physical fitness exercise group on the standing broad jump, bent knee push-ups, and bent knee sit-ups. The statistical findings and subjective evaluations supported the advisability of incorporating this weight training program into the school's PE curriculum.

411. MCMAHON, Michael W. The history of the California State Recreation Commission Division, 1947-1966. M.A. in Recreation Administration, 1970. 187 p. (J. R. Needy)

The following served as sources of data: newspapers, periodicals, books, bulletins, minutes of board meetings, minutes of staff and departmental meetings, personal letters, personal interviews, annual reports, and special studies. It was found that the California State Recreation Commission has contributed greatly to the development of many aspects of recreation in California and the nation. State agencies involved with recreation need to coordinate their objectives, and the role of state governments in recreation, with regard to their political subdivisions, needs to be resolved. There are definite services that the state could render to its political subdivisions with regard to recreation. The state's involvement with the private sector of recreation has been negligible. The possibility of a research center for recreation should be explored by the State Park and Recreation Commission.

412. NIX, John B. Motivational reasons for participation and nonparticipation in interscholastic athletics. M.A. in Physical Education, 1969. 85 p. (A. A. Bates)

This study identified some of the motivational reasons that influenced a boy to sustained participation in interscholastic athletics. Questionnaires were filled out by 621 senior boys (athletes and nonathletes) at the 5 public SHSs in Santa Cruz County, California. The most important reasons why boys did not participate in athletics were: they chose to work after school; they preferred to study to maintain their grades; they believed they lacked the skill to make the team; and they did not like the coaches. The most important reasons why athletes did participate were: they liked the sport in which they were competing; they had the desire to compete and win; and they had the desire for physical conditioning and development. The most prevalent reasons why SHS athletes did not complete the full sports season were: they preferred to work after school; an injury made them stop; practice conflicted with maintaining their school grades; they did not like the coaches; they were removed from the team; and they lacked the skill to make the team. It was also found that more athletes participated in football than in any other sport, with basketball a distant second. More boys participated in athletics during their sophomore year than in other years, with a steady decline in the junior and senior years.

413. PAUL, Douglas K. A brief history of football at Washington High School. M.A. in Physical Education, 1970. 108 p. (H. H. Wolf)
The purpose was to collect, edit, and document information about the football program at Washington HS, Sacramento, California, from the school's beginning through the 1969 football season. Data included local newspapers, SHS yearbooks, statistics from football game records, and interviews and other personal communications with past and present coaches. Information pertaining to budgets and requisitions was obtained from district and school files. It was concluded that Washington HS football teams have experienced very limited success, possibly because of the fact that the school enrollment has been considerably less than that of others in the league. Also, there has been a problem of recruiting athletes. Budgets have been adequate, but there has been no specific plan for the purchase of equipment over the years. There have been no efforts made to preserve records of the purchase of equipment, nor any organized attempt to preserve athletic records as an important part of the school's history.

414. PETHEL, Dorothy L. A comparison of two approaches to planning instruction on drug abuse. M.A. in Health and Safety Studies, 1970. 99 p. (F. B. Benell)
Ss consisted of 4 classes of ninth grade students. Two classes were used as control groups and received the traditional method of instruction, with the teacher planning the students' work. The other 2 classes were the experimental groups; they received the student-oriented method of instruction, with the students planning, developing, and presenting their own program on drug abuse. Knowledge tests and questionnaires were major sources of data. Prior to receiving instruction, Ss were pretested on their knowledge and attitudes relating to drugs and their abuse. The same measures were repeated at the close of the experiment. The attitudes of the control groups did not improve after instruction; in fact, the instruction seemed to produce a slightly unfavorable effect. There was little change in the attitudes of the students in the experimental groups. It may be concluded that probably neither method of instruction can produce appreciable changes in knowledge or attitudes of SHS students within the presently allotted time for teaching the unit on drug abuse.

415. RAPISARDA, Joseph R. A survey of leisure-time activity experiences and opinions of male Vallejo High School graduates in relationship to the activities of the high school physical education program. M.A. in Physical Education, 1970. 68 p. (A. A. Bates)
The purposes were to discover the extent of past recreational experiences associated with the PE program; survey the amount of current recreational activity and evaluate the relationship between such activity and past PE experiences; and record the opinions of graduates concerning what recreational activities should be taught in the PE program and the amount of emphasis that should be given to such carry-over activities. Sources of data were 95 male graduates of Vallejo HS, California, 1958-1968. Conclusions reached were that only 3 of the past PE experiences (swimming, handball,

and tennis) had future leisure time carry-over value; baseball, basketball, softball, and swimming were the only current recreational activities which were influenced by past PE experiences; and the graduates recommended that the present SHS students be taught to be good spectators and active participants in individual and dual sports.

416. ROBUSTELLI, Michael P. An analysis of the Sacramento State College Zot defense. M.A. in Physical Education, 1970. 136 p. (C. R. Boyes)

Sources of data included books, periodicals, personal correspondence, personal interviews, yearbooks, newspapers and unpublished materials. The Zot defense in football was found to be slightly superior to other defenses, with its main strength being a deterrent to the running offense of the opponents. When comparing the Zot defense with "reading" defenses in meeting the individual objectives of defense, the coaches' average responses on specific items were more positive than when comparing it as a whole with other defenses. When comparing the Zot defense against reading defenses in meeting individual objectives of preventing the running game, the coaches' average responses on specific items were less positive than when comparing it as a whole. When comparing the Zot defense against reading defenses in meeting individual objectives of preventing a pass, the coaches' average responses on specific items were less inferior than when comparing it as a whole.

## **Slippery Rock State College, Slippery Rock, Pennsylvania** (R. N. Aebersold)

417. BRUNO, Paul J. Football at Slippery Rock State College from 1898 to 1939. M.Ed., 1970. 68 p. (R. N. Aebersold)

418. BUTERBAUGH, Wanda K. A study of factors important to environmental (conservation-outdoor) education instruction. M.Ed., 1970. 74 p. (J. W. Shiner)

419. ELOSSER, Ronald W. Slippery Rock State College Environmental Education Laboratory – A developmental plan. M.Ed., 1970. 75 p. (J. W. Shiner)

420. GOODPASTER, Edward L. The difference in personality structures between a group of collegiate wrestlers and a control group of non-wrestlers at Slippery Rock State College. M.Ed., 1969. 38 p. (R. F. Block)

421. MILLER, Jean V. A comparative study of the cardiovascular curriculum presented in selected ninth grade schools. M.Ed., 1970. 48 p. (W. C. Meise)

422. WALTERS, Irene. A study of the relationship between level of intelligence and stabilometer performance. M.Ed., 1970. 36 p. (C. Brooker)

## **Smith College, Northampton, Massachusetts** (E. E. Way)

423. BELIVEAU, Darlyne Lynn. The effects of massed, distributed, and additive practice on motor learning. M.S. in Physical Education, 1970. 50 p. (J. A. Mott)

424. BUSH, Judith Carole. A study of factors relating to badminton playing ability. M.S. in Physical Education, 1970. 55 p. (J. A. Mott)

425. de SCHOT, Gretchen Rose. Suite for Ten. M.S. in Physical Education, 1970. 21 p. (J. A. Mott)

426. HAUGEN, Nan. An investigation of the tennis serve and its contribution to the game. M.S. in Physical Education, 1970. 64 p. (J. A. Mott)

427. KLEIN, Bari Andrea. A formation of a guide to classroom games for educable mentally retarded children. M.S. in Physical Education, 1970. 128 p. (J. A. Mott)

428. REILLY, Linda Graening. The effectiveness of videotape in the teaching of modern dance choreography. M.S. in Physical Education, 1970. 56 p. (J. A. Mott)

## **South Dakota State University, Brookings, South Dakota** (P. H. Brynteson)

429. KOURI, Ronald L. The comparison of using the backboard versus the basket rim as a point of aim in basketball shooting. M.S. in HPER, 1970. 35 p. (G. E. Robinson)

Ten male Ss from the South Dakota State University Junior Varsity Basketball Team took 80 shots from selected spots at distances of 10 ft. and 15 ft. from the basket. The shots were recorded either as shots made or shots missed. Results indicated that at a distance of 15 ft. it was better to aim at the rim ($P < .05$). At a distance of 10 ft. it was better to aim at the backboard than the rim ($P < .05$).

430. MITCHELL, Anthony B. Effects of off-season weight training programs on development of strength and explosive power of football players. M.S. in HPER, 1970. 56 p. (P. H. Brynteson)

Ss ($N = 26$) were randomly placed in 3 groups: circuit weight training, 8-6-4 repetition power training, and a 7-sec. rapid weight training program. Conditioning covered a period of 6 wk. with Ss meeting 3 days per week. Pre- and post-tests for strength, explosive power, and body weight were administered. The 8-6-4 power training group showed a greater improvement in bench press strength as compared to the circuit training group, $P < .05$. No other significant differences among groups were evidenced. All 3 groups significantly increased strength and body weight. None of the groups significantly improved in explosive power.

431. MOLDE, Alan I. The effects of selected training intensities and duration on blood cholesterol and selected anthropometric measurements. M.S. in HPER, 1970. 64 p. (P. H. Brynteson)
Male college freshman volunteers ($N = 55$) trained for 10 weeks, 3 times per week on a bicycle ergometer at either 70% or 80% of their maximal heart rate for 1 of 3 possible durations (10, 20, or 30 min.). A pretest, a midtest, and a posttest, were conducted to collect data on cholesterol, percentage body fat, and body weight. The experimental design of the study was a 2 X 3 factorial design. ANOVA was applied to the data and no significant F ratios were obtained among the groups on the selected measures.

432. MOORE, Bernard A. The effects of interval training in ambient temperature variations as measured by cardiovascular endurance. M.S. in HPER, 1970. 50 p. (G. E. Robinson)
Two experimental groups participated in a 5-wk. progressive interval training program during which time they met for 20 training sessions. One group trained in a warm environment (77.1 F), and the other group trained in a cold environment (18.8 F). A control group did not train, but continued in a regular PE basic instruction course. Findings indicated that the 5-wk. progressive interval training program in either a warm or cold environment improved cardiovascular endurance as measured by the 600-yd. run ($P < .05$), but that the cold environment appeared to be a superior training environment for the improvement of cardiovascular endurance.

433. SWISHER, Joel A. The effects of selected training intensities and duration on improvement and maintenance of cardiorespiratory fitness. M.S. in HPER, 1970. 90 p. (P. H. Brynteson)
Fifty male volunteers from freshman PE classes at SDSU were tested before, after 5 wk., and at the end of a 10-wk. conditioning program on Max $VO_2$, Max $V_E$, maximal heart rate, $O_2$ pulse, $VEO_2$, and $FEV_{1.0}$. Ss trained 3 times per week on a bicycle ergometer for either 10, 20, or 30 min. at an intensity of either 70% or 80% of their maximal heart rate. A 2X3 ANOVA indicated no overall significant differences among the groups. The training programs employed were possibly not strenuous enough due to the S's initial excellent condition (Max $VO_2$ = 49.60 ml/kg/min.).

434. WILSON, Lloyd D. Changes in the physical status of high school wrestlers brought about by deconditioning. M.S. in HPER, 1970. 62 p. (P. H. Brynteson)
Seven SHS varsity wrestlers who had competed in no fewer than 10 varsity wrestling matches were tested just prior to the end of the wrestling season, 5 wk. after the end of the season, and 10 wk. after the season. Data were collected on cardiovascular efficiency, strength, explosive power, % body fat, and weight. Results indicated that cardiovascular efficiency decreased ($P < .01$) during the 10-wk. deconditioning period. Shoulder extension strength and ankle plantar flexion strength increased ($P < .01$), but knee extension strength and explosive power did not change during the 10-wk. deconditioning period. The % body fat and weight of the wrestlers increased ($P < .01$) following the 10-wk. deconditioning period.

435. WHEELER, William V. The policies and procedures of financing interscholastic athletics in selected public high schools of South Dakota. M.S. in HPER, 1970. 83 p. (G. E. Robinson)
A questionnaire was sent to superintendents of 20 SHSs randomly chosen from each of the classes (AA, A, and B). Forty-nine of the 60 schools

responded. Areas questioned included the cost of administration, coaching, meals and lodging, transportation, officiating, equipment, and expendable items. Results indicated in part that the smaller schools appeared not to have as sound a budgetary policy as did the larger schools, the cost per participant was almost double for the AA schools as opposed to the B schools, basketball was the most expensive sport based on per participant cost, followed by football, wrestling, and track.

**Southeast Missouri State College, Cape Girardeau, Missouri** (R. F. Kirby)

436. HANSON, Terrance M. A history of intercollegiate basketball at Saint Benedict's College from its initiation in 1919 through 1969. M.A., 1970. 150 p. (R. F. Kirby)

An investigation was made into the history of intercollegiate basketball at Saint Benedict's College from its initiation in 1919 through 1969. A written historical account of each season was presented in the body of the study. A series of appendices included the yearly won and lost records; yearly results; yearly rosters; won and lost record against each opponent; and coaches' won and lost record. Books, yearbooks, school newspapers, local newspapers, cumulative records, and personal interviews were utilized as sources of data.

437. MEYER, Courtney A. A comparison of the four-point stance to the three-point stance in speed of lateral movement of football linemen. M.A., 1970. 66 p. (R. F. Kirby)

The 3- and 4-point stances were compared by utilizing 28 varsity football linemen at Southeast Missouri State College. Determined was the more efficient stance in performing the lateral pulling technique. Twenty trials transversing a lateral distance of 10 ft. were performed by each S. Movement times to the right and left were obtained with the aid of the Dekan Automatic Performance Analyzer. A mean difference .025 of a second in favor of the 3-point stance was found and concluded not to be a real practical difference.

438. RILEY, Larry L. The influence of a season of basketball on selected physical fitness components of college basketball players. M.A., 1970. 36 p. (R. F. Kirby)

Five physical fitness variables were measured on 21 college basketball players at Southeast Missouri State College. Pretest and posttest means gathered at the beginning and end of a season of basketball revealed no real practical differences in 4 of 5 variables. Variables measured were resting pulse rate, Harvard Step Test, grip strength, leg strength, and adipose tissue. An improvement in leg strength was determined to be of a real practical difference.

439. WISSORE, Bruce R. An application of mechanical principles to selected wrestling moves. M.A., 1970. 81 p. (R. F. Kirby)

An application of mechanical principles was made to the Japanese whizzer, the drop-step, the single-leg takedown, and the double-leg takedown at Southeast Missouri State College by means of cinematography. Ss, 2 varsity collegiate wrestlers, performed the moves in accordance with the directions of experienced coaches. The moves were photographed from several angles and viewed frame-by-frame. During the visual inspection, the mechanical principles involved in the moves were noted and applied to the appropriate parts of each move. It was concluded that the moves were performed in accordance with sound principles of human movement; the dropping foot of the drop-step should fall at a natural running angle; and the method of analysis used was an effective technique.

**University of Southern California, Los Angeles, California** (H. S. Slusher)

440. KELLY, Darlene A. Phenomena of the self-experienced body. Ph.D. in Physical Education, 1970. 237 p. (H. S. Slusher)
Selected writings of 2 philosophers, Gabriel Marcel and Maurice Merleau-Ponty, were analyzed in order to clarify their concepts of the phenomenal body. The following major concepts were revealed: The phenomenal body is experienced as being the integrated whole of a person rather than something he has or uses; the phenomenal body is a nascent perceiver of knowledge and a communicator of acts of consciousness; and human movement is a temporal-spatial extension of an act of consciousness. A phenomenological reduction of the self-experienced body in a movement situation was used to test the truth of these concepts. Three statements were found to correspond to the experience of moving. It was found that the body is experienced in movement as being oneself; movement is experienced as being a completion of one's ideas in the form of observable, momentary existents; and that during movement a person experiences himself in various spatial-temporal relationships with external phenomena. It was concluded that the self-experienced body is a structured whole of a person and that the self-experienced body functions as a nascent acquirer of knowledge and as a communicator of intentional acts of consciousness via observable, symbolic forms of movement.

**Southern Illinois University, Carbondale, Illinois** (R. G. Knowlton)

441. BEUERLEIN, Mary Ann. A skill test for the drop shot in badminton. M.S. in Physical Education, 1970. 97 p. (J. L. Thorpe)
Ss enrolled in beginning badminton-archery classes were tested on their performance of the overhead drop shot by the test-retest method with 10 trials of the test given on each of 2 days. Colored ropes were fastened to the net standards above the net at heights of 1 ft., 2 ft., and 3 1/2 ft. The floor target consisted of 3 areas 3 ft. 3 in.; 6 ft. 6 in.; and 9 ft. from the net. Ht. plus floor score and ht. X floor score were the 2 methods of scoring studied. The target adequacy, objectivity, reliability, validity, and intercorrelation of the variables were studied for the measures of height and distance for 2 methods of scoring (additive and multiplicative). Objectivity coefficients for scoring height and distance were .98 and .97 respectively. The estimates for r were not sufficient for the beginning group (.11 to .33), the advanced group (.08 to -.15), or the combined group (-.02 to -.23). The multiplicative scoring procedure did not differentiate between

the 2 criterion groups in the study of validity. More trials and/or days of testing might increase the estimates of reliability.

442. DEVINE, Donald W. The effects of strenuous exercise upon reaction time and speed of movement. M.S. in Physical Education, 1970. 48 p. (J. Wilkinson)

Ss were 40 athletes, of whom 20 were baseball players, 20 wrestlers, and 40 nonathletes. Reaction time (RT) was measured by determining the amount of time elapsing between a simultaneous buzzer-light stimulus and S depressing a reaction time stop trigger mechanism with the thumb of his preferred hand. Speed of movement (MT) was measured by determining the amount of time elapsing between the buzzer-light stimulus and S contacting a floor foot pad 7 ft. in front of him. The effect of strenuous exercise was determined by comparing RT and MT before and after strenuous exercise. The effect of strenuous exercise upon RT was the same for both athletic groups across the range of pretest scores, and the athlete groups posttest RT was superior to the nonathlete group when the pretest scores were below .1975 sec. Nonathletes whose pretest scores were above .1975 were slightly superior to athletes who had pretest scores above .1975 sec. On MT tasks after strenuous exercise the baseball players and wrestlers are colinear and superior to nonathletes.

443. GIFFORD, Peter B. A comparison of a time oriented and distance oriented field test of aerobic capacity. M.S. in Physical Education, 1970. 63 p. (R. G. Knowlton)

Two techniques of administering a field test of aerobic capacity were compared by forming 2 equal groups on the basis of maximal oxygen intake capacity determined directly (cc/kg/min.). The first group ran as far as possible in 15 min. The mean distance they traveled (1.97 miles) was run by the second group as fast as possible. The groups were compared on the basis of mean velocity in ft./sec., mean velocity drop-off, and mean accumulative 440 yd. interval times. The performance of the second group was shown to be significantly superior in each comparison ($P < .05$).

444. JONES, Cynthia L. Cinematographical analysis of two techniques of performing a standing front dive. M.S. in Physical Education, 1970. 104 p. (J. L. Thorpe)

The purpose was to determine the effects of eliminating the vertical arm lift upon the diving mechanics of a standing front dive in an open pike position. Six Ss of above average skill were filmed performing 4 dives, 2 with the vertical arm thrust and 2 without it. Data were analyzed to determine the differences between the 2 dives for the following variables: vertical and horizontal changes in the center of gravity, the degree of hip flexion at maximum height and at take-off, the degree of knee and ankle flexion, the angle of body lean at take-off, and the degree of plantar flexion. Results of a t test for correlated samples indicated that the elimination of the vertical arm thrust did not markedly affect the primary variables of the standing front dive in an open pike position.

445. KORANDO, Catherine A. The determination of valid measures of balance beam performance. M.S. in Physical Education, 1970. 130 p. (C. West)

One strength test, 1 agility test, 4 dynamic balance tests, and 4 kinesthetic awareness tests were administered to a beginning group of gymnasts

($N = 30$) and an advanced group of gymnasts ($N = 5$). None of the 10 measures discriminated between the 2 diverse levels of skill ($P > .01$). Among the 10 tests and an experience variable, the most parsimonious and valid measure of beginning balance beam performance was a model containing the modified Scott sideward leap and the experience variables. A $R^2$ value of .54 ($r = .73$) was obtained for the model. The $R^2$ value for the model with all 11 variables was .72 ($r = .85$). An $F$ ratio comparison between the $R^2$ values (.54 and .72) was not significant at the .01 level.

446. KUHAJA, Patricia F. The construction and validation of a skill test for the riposte lunge in fencing. M.S. in Physical Education, 1970. 127 p. (C. West)

A skill test for the riposte lunge in fencing was constructed and administered to 38 women enrolled in beginning fencing classes. A wall target was used to measure the accuracy of the riposte lunge; .01 sec. stopwatches were used to measure the speed of the riposte lunge. The test required S to parry 4 by touching a vertical target, riposte, and lunge toward the wall target. A total of 5 trials on each of 2 days was given. Analysis of data indicated that the test was an objective, reliable, and valid measure of the riposte lunge in fencing.

447. LEONARD, Peggy L. A self-instructional unit for learning beginning synchronized swimming stunts. M.S. in Physical Education, 1970. 320 p. (J. L. Thorpe)

The study was conducted to determine if beginning synchronized swimming stunts could be presented effectively, through a self-instructional unit, and could influence significant learning of the skills. A beginning unit of synchronized swimming was constructed and an order of progression of 18 synchronized swimming stunts was established. 17 Ss participated in the teacher-directed method; and 12 Ss utilized the self-instructional method for learning the stunts. Students utilizing the self-instructional materials performed selected synchronized swimming stunts equally as well as students learning the same stunts through a traditional, teacher-directed approach.

448. NICKASON, Howard L. The effects of two training techniques on ball velocity. M.S. in Physical Education, 1970. 87 p. (L. A. Good)

The purpose was to determine the training effects of proprioceptive neuromuscular facilitation (PNF) on ball velocity. Two secondary purposes were to compare the training effects of PNF to progressive resistive exercise training (using an Exer-Genie) for increasing ball velocity, and to determine the effects of the training techniques on strength and range of motion of the throwing arm. The control group took only the pre- and post-tests. At the conclusion of the training period, no group threw significantly (.05 level) faster than any other group. It was concluded that the training techniques had limited effects on the strength and range of motion of the throwing arm, and that the Exer-Genie training had a significant negative effect on ball velocity.

449. PETERSON, Joanne. Relationship of anaerobic power expressed as total weight, lean body mass, and vertical velocity to the functional measures of the forty-yard dash and the standing broad jump. M.S. in Physical Education, 1970. 63 p. (R. G. Knowlton)

An electrical timing device was devised for the purpose of measuring the anaerobic power of a vertical jump. Female students ($N = 30$) were tested on the vertical jump, standing broad jump, and 40-yd. dash. In addition to anthropometric measures to predict % body fat, a regression equation was cast to determine the best predictors of anaerobic power as measured by the vertical jump. The measures of the standing broad jump and the 40-yd. dash did not relate significantly to anaerobic power. Best predictors of anaerobic power were found to be weight and vertical velocity, with weight having the greatest influence.

450. SCHWANE, James Alan. A multivariable analysis of the respiratory and blood acid-base response to exercise. M.S. in Physical Education, 1970. 93 p. (R. Knowlton)

Respiratory parameters ($V_E$, f, $VO_2$, $VCO_2$, RQ) were measured on 16 university students at rest and at a heart rate of 180 during the final min. of treadmill grade-walking. In addition, blood acid-base parameters (pH, $PCO_2$, BE) were determined by the Astrup technique on the same Ss at rest and during recovery from the exercise test. Multiple linear regression analysis was applied to the data to test the significance of various relationships. The response of each of the 3 acid-base variables was significantly related to exercise $V_E$; the best single relationship was the curvilinear relation of recovery BE to exercise $V_E(1/m^2/min)$. Best predictability of the ventilatory ratio by the acid-base variables was by the regression model: VR = (Recovery $PCO_2$) + (Recovery BE) + (Recovery $PCO_2)^2$+(Recovery BE$)^2$. The acid-base response to exercise showed no general relation to the measures of physical work performed. However, work intensity as indicated by exercise RQ was linearly related to the change in pH from rest to exercise (i.e., the higher the exercise RQ, the greater the change in pH). The group of more fit Ss showed significantly lower recovery $PCO_2$ values and lower resting BE values than the less fit group.

451. SLAGLE, Patricia L. Cardiovascular response to exhaustive treadmill work as related to structural measurements and habitual physical activity in college women. M.S. in Physical Education, 1970. 83 p. (R. G. Knowlton)

A history-recall activity questionnaire was developed for the purpose of assessing the level of habitual activity of 30 college women who differed in body type and % of body fat. A prescribed treadmill exercise test showed no significant difference (.05 level) in the cardiovascular responses of active and inactive Ss. However, the heart rate and blood pressure responses were somewhat lower in the active group during rest, exercise, and recovery.

452. SMITH, Rick Eugene. Effectiveness of a mental checklist for psychological preparation in the precompetitive situation. M.S. in Physical Education, 1970. 36 p. (J. Wilkinson)

Track athletes (N = 21) were used to develop an instrument to contribute to psychological preparation before competition. Ss were placed into strata of jumpers, throwers, distance runners, and sprinters. Two groups served as treatment groups and 1 as the control group. One treatment group received the instrument for the full season (8 meets) and the other treatment group received the instrument for the last half of the season (4 meets). The instrument was administered an hour before competition. Performances for Ss were recorded and evaluated by the decathlon point system.

improvement (mean change score) for each group was used in a multiple linear regression model to determine whether the treatments were significantly better than the control group treatment. The half season group was statistically better than the control group. It was concluded that the instrument application had a variable effect on performance in track competition.

453. VEENSTRA, Ronald Lee. The effect of induced hyperglycemia on specific metabolic variables at rest and during submaximal exercise. M.S. in Physical Education, 1970. 75 p. (R. G. Knowlton)
Eight male Ss were subjected to 3 treatments; a Glucose Tolerance Test (GTT), 1 hour exercise with glucose administration prior to the exercise, and the identical exercise without glucose. Measures were obtained at rest; 20, 40, and 60 min. into the exercise session; and 5 min. into recovery. Variables measured were heart rates, blood glucose levels, RQ's, percentages of Max $VO_2$ achieved, and heart rate recoveries. Trend analysis was applied to these values. ANOVA showed a greater uptake of glucose without exercise than with, although there was no significant difference between the blood glucose trends established by exercise with glucose, and exercise without glucose. Administration of glucose did not affect heart rate response to the standardized work. There was greater immediate utilization of carbohydrates without glucose administration than with, and less metabolic effort was required for the standardized work with glucose administration than without.

454. WADDELL, Peter J. The effects of body fat content on indirect test predictions of maximal oxygen consumption. M.S. in Physical Education, 1970. 85 p. (R. G. Knowlton)
Ss were 10 untrained college males who were divided into 2 groups designated as either obese (over 19.5% body fat) or nonobese (under 14.5% body fat) on the basis of a skinfold formula for body fat. Ss performed the Astrand Bicycle Ergometer Test and Balke Progressive Treadmill Test to predict maximum oxygen consumption. Criterion for judgment of these tests was the Taylor Treadmill Test which directly measured maximum oxygen consumption. Both submaximal tests underestimated the mean maximal oxygen consumption of each group. The Balke test when used with obese Ss was the best predictor. Arbitrary assignment of indirect predictive tests of maximal oxygen consumption should be avoided with Ss of extreme body fat content.

455. WHYMAN, Deanna M. Two methods of evaluating the front crawl in swimming. M.S. in Physical Education, 1970. 135 p. (J. A. Thorpe)
The purpose was to develop a diagnostic sheet for evaluating the process of the front crawl and to ascertain how effectively it could be used by students and experts. The rating scale developed by DGWS was revised and used by the control groups. Four college classes in beginning swimming were selected, and ratings were made by both students and experts. Validity and objectivity of the ratings were studied. Although the experimental method was superior in the rating of the kick, no difference was determined for the 2 evaluative techniques for body position.

456. WINN, Donald Lee. A multiple linear regression analysis of selected variables for predicting success in the twelve-minute run for junior high school boys. M.S. in Physical Education, 1970. 66 p. (R. Knowlton)

Five anthropometric, 3 pulse, and 3 physical performance measures were used as predictors for the distance run in 12 min. by 375 JHS boys. Weight, postexercise pulse, and the 600-yd. run was the best combination of predictors. The 600-yd. run was the best single predictor. Age, height, lower leg length, and total leg length had no significant correlation to the 12-min. run. Norms were constructed for each of the variables. The norms for the standing broad jump, 50-yd. dash, and 600-yd. run were compared to those in the AAHPER Youth Fitness Test. Ss scored slightly below the national norms.

## Springfield College, Springfield, Massachusetts (W. J. Sullivan)

457. ALEXANDER, Lynn F. Muscle stretching and reciprocal patterning as a means of establishing a reciprocal gait for a microcephalic quadraplegic. M.S. in Physical Education, 1970. 53 p. (S. Shaw)

The S for this case study was an 8-year-old microcephalic who was a resident in an infirmary of a state school in Massachusetts. Leg extension was measured over a period of 6 wk. to determine if muscle stretching had an effect on releasing functional contractures. Photographs were used to determine progress in establishing a reciprocal pattern in crawling and in gait. As a result of the stretching exercises, functional muscle contractures were released from $6^o$ to $9^o$ for both legs. Reciprocal patterning during exercise led to a reciprocal gait when certain conditions were in evidence.

458. AMPUDIA, Jose D. A comparative investigation of the use of soccer and baseball shoes in running speed. M.S. in Physical Education, 1970. 43 p. (J. Parks)

College freshman and varsity baseball players (N = 14) were tested for running speed over a straight distance of 60 ft. and for their speed in stopping and starting over a distance of 60 ft. Both tests were administered twice. In one case, Ss wore soccer shoes; the second time, they wore baseball shoes. Results revealed that there were no differences in running speed between the use of soccer shoes and baseball shoes.

459. BALVIN, Kenneth R. A comparative study of selected water polo techniques. M.S. in Physical Education, 1970. 37 p. (C. Shay)

Ss were 15 college males who were tested for throwing velocity using the straight arm technique and elbow flexion technique. The distance of the throw was 4 yd. Utilization of the t test indicated no significant difference ($P > .05$) between the 2 methods of throwing a water polo ball.

460. BAYER, James. An analysis of the drownings in the Province of Nova Scotia from 1960-1966. M.S. in Physical Education, 1970. 77 p. (H. Childs)

Data were collected from the Vital Statistics Division in Nova Scotia and in Ottawa, the records of specific water safety agencies in Nova Scotia, and the records of local or provincial police forces in Nova Scotia. Data were gathered by both the documentary and survey methods of research. Analysis of the data revealed that drownings ranked third among the causes of accidental deaths. The drowning rate per capita was greater for Nova Scotia than for the Dominion of Canada. More than 8 males drowned for every female who drowned. Drownings were the second greatest cause of death by accident in the 5 to 19 year age group. The hourly interval which reflected the highest rate of drownings was 3:00 p.m. to 3:59 p.m. The highest incidences of drownings were related to boating mishaps. The author included a section on recommendations for improved safety procedures.

461. BENTHAM, James. A study to compare the drownproof swimming method with the Red Cross method of teaching beginners to swim. M.S. in Physical Education, 1970. 64 p. (C. Shay)
Ss were beginning swimming students, 6 to 12 years of age. Ss were divided into 2 classes; 1 class was taught by the Red Cross method and the other class by the Drownproof swimming method. Each S in each class was given 1/2 hour of instruction for 11 days and all Ss were tested on the 12th day. The test consisted of having S swim as far as possible using the techniques he or she was taught. Individual *t* tests for differences were computed for each age group. Results showed that the Drownproof swimming method was superior for ages 6 to 11. There was no difference between the 2 groups for 12-year-olds.

462. BERGASSE, Sally. A survey of the concept of amateurism in Canada. M.S. in Physical Education, 1970. 73 p. (A. Sherman)
Data were collected from questionnaires ($N = 71$) mailed to officers of the national sports governing bodies in Canada, and to federal government consultants who deal directly with the problem of amateurism with the Fitness and Amateur Sports Directorate. Percentage analysis was used in treatment of the data. It was concluded that there is no uniform definition of amateurism which can be applied to all sports in Canada. All of the present rules or criteria for the determination of amateurism are not applicable in Canada at the present time.

463. BETTENCOURT, Richard M. The relationship between selected fundamental skills and team success in intramural junior college basketball. M.S. in Physical Education, 1970. 35 p. (E. Steitz)
Players ($N = 72$) on 12 junior college intramural basketball teams were used as Ss. The rankings of the 12 teams at the completion of league play were used as the criterion of team success. The 9 items of the AAHPER basketball skills test served as the independent variables. A $\bar{X}$ score for each team on each test item was computed. The correlations for each test item with the criterion of team rankings were: push pass for accuracy (.923), under basket shot (.513), jump and reach (.474), dribble (.918), front shot (.839), overarm pass for accuracy (.720), foul shot (.836), speed pass (.844), and side pass (.832). All correlations, with the exception of those for the under basket shot and the jump and reach, were significant ($P < .05$).

464. BOTTGER, Robert C. Relationship between PFI and long distance running. M.S. in Physical Education, 1970. 37 p. (W. Doss)
Ss were 9 members of a college varsity cross-country team. They were administered the Roger's PFI prior to their first competitive meet. Ss'

times of performance in dual meet competition were obtained from the official meet records; the distance of each race was also obtained. Average velocity for each S in each competition was computed and the 5 fastest average velocities for each S were used to compute his average season velocity. The product-moment coefficient was found to be -.41 and it was concluded that the use of the Roger's PFI in predicting long distance running was not warranted.

465. BROWN, Frances L. A comparison of two methods of accompaniment for intermediate axial warm up exercises in modern dance for junior high school girls. M.S. in Physical Education, 1970. 104 p. (J. Genasci)

Ss were 283 JHS girls who were divided into 2 groups. Each group performed 5 intermediate axial warm-up exercises. One group performed the exercises to the accompaniment of the Indian hand drum while the second group performed to the accompaniment of instrumental records. A videotape recorder was used to record the Ss' performances of the 5 exercises. Each taped performance was scored on a 1 to 10 basis. The experimental design was a 3 X 2 factorial with grade level serving as 1 factor and type of accompaniment as the second factor. No significant differences were found between the 2 levels of accompaniment for performance execution or form. The 9th graders, however, performed significantly better ($P < .05$) than the 8th graders.

466. BUSH, Jone J. Anxiety and performance at three levels of competition in women's intercollegiate gymnastics. D.P.E., 1970. 102 p. (J. Genasci)

Members of the Springfield College Women's Gymnastic Team ($N = 16$) served as Ss. Anxiety level was measured by the IPAT 8-Parallel-Form-Anxiety Battery. The base level of anxiety was determined by administering 2 forms of the test to S 20 min. before the beginning of a regular practice session in which her subsequent performances were not rated. Four forms of the test were given prior to practice sessions in which Ss' performances were rated, and 1 form was given before each of 4 competitive gymnastic meets. The evaluations of gymnastic performance were the scores from 3 rated gymnastic judges. The t-test, ANCOVA, and correlations were used to analyze the data. It was found that there was no significant change in anxiety from the base level to the anxiety expressed prior to any of the competitive situations. There was no significant difference between the regular contestant group and the occasional contestant group in the anxiety expressed from the base level to the competitive gymnastic conditions. There was no statistically significant relationship between performance scores and anxiety level for the occasional contestant group in any of the gymnastic conditions.

467. CAPELLI, Paul. A study on shooting accuracy in ice hockey when using four different length hockey sticks. M.S. in Physical Education, 1970. 47 p. (A. Kidess)

Eighteen college and SHS hockey players served as Ss for the study. A target was placed over the hockey goal and each S took 5 shots at each of the 4 corners of the target with each of the 4 different sticks. The test was conducted for 2 days giving each S a total of 160 shots. ANOVA with repeated measures indicated that there was no difference in shooting accuracy among 4 different lengths of hockey sticks.

468. COBB, Robert A. The effects of selected visual conditions on throwing accuracy. D.P.E., 1969. 104 p. (E. Seymour)
Ss (N = 72) were utilized with 24 Ss in each of 3 groups. One group threw footballs, a second group threw baseballs, and a third group threw darts. Within each of the 3 groups, 4 visual conditions were applied. They were total vision, peripheral vision only, central vision only, and visual occlusion. Each S, in each of the 3 groups, received all 4 visual conditions. A treatments by subjects ANOVA indicated that total vision had no distinct advantage over central vision in relation to throwing accuracy. Central vision was significantly better than that part of the peripheral field existing beyond 20° from the middle of the target. Level of accuracy diminished when the target itself was not seen, and continued to diminish further when the area surrounding the target was occluded leaving only the peripheral visual field falling beyond 20° from the center of the target.

469. DUCK, Thomas Arthur. An electrogoniometric study of the front hand spring. M.S. in Physical Education, 1970. 62 p. (W. Sinning)
Cinematography and electrogoniometry were the methods used to record the data from 5 Olympic and 2 university gymnasts, each of whom executed 4 front handsprings. Findings indicated that descriptions of the mechanics and execution of the front handspring appearing in the literature generally are in error in 1 or more aspects when compared to the pattern of movement shown through cinematography and electrogoniometry. The shortness of take-off foot contact and the rapid extension of the knee and plantar flexion of the ankle indicate that this phase of the handspring contributes a major portion of the force producing rotary movement around the axis formed by the hands on the floor. The simultaneous extension of the swing hip, take-off knee plus the plantar flexion of the take-off ankle up to take-off foot lift produces momentun in the direction of the total movement and, in particular, causes rotation about the hands.

470. DUFFY, Marie. A comparison of the effectiveness of two selected visual techniques upon the learning of the tennis forehand drive. M.S. in Physical Education, 1970. 41 p. (C. Shay)
Ss were 30 college women enrolled in beginning tennis classes who were administered the Hewitt Revision of the Dyer Backboard Test and were randomly assigned to 1 of 2 groups. One group viewed a 4-min. film loop and then practiced for 4 min., during which their actions were recorded on videotape. They then viewed the videotape and practiced for 4 additional min. The other group viewed the film loop and practiced without videotape feedback. All Ss met for 5 days, 16 min. per session. At the completion of the 5 daily practice sessions all Ss were again tested. No significant differences were found between the 2 groups on the pre- or post-test scores. Both groups improved significantly ($P < .05$) from pretest to posttest.

471. FOLKE, Jane M. A comparative study of the figure-8 run test and the standing broad jump test. M.S. in Physical Education, 1970. 19 p. (C. Shay)
The figure-8 run test and the standing broad jump test were administered to 144 4th, 5th, and 6th grade boys and girls. Correlations were computed for each grade level for boys' scores, girls' scores, and combined scores. The boys' and girls' scores from all grade levels were also correlated. The overall correlation was found to be .41, which was statistically sig-

nificant (P <.01). It was concluded, however, that the r was not high enough for the Figure-8 run test to replace the standing broad jump test as a measure of explosive leg strength.

472. FORD, Robert M. Anxiety in noncompetitive and precompetitive situations involving intercollegiate football players. D.P.E., 1970. 155 p. (J. Genasci)
The IPAT 8 Parallel Form Anxiety Battery was administered to 36 Ss, members of a university football team, 7 times (2 preseason and once before each of the 1st 5 games). Game performance ratings of the Ss were accomplished through film analysis. It was found that anticipation of an intercollegiate football contest created an anxious situation for the athletes. The athletes who played a great deal were more anxious than those who did not play a great deal. A significant, positive relationship existed between increase in anxiety scores and performance. There was no consistent relationship between an athlete's pregame anxiety level and his performance.

473. FORSYTH, Harry L. The estimation of lean body weight in male athletes. D.P.E., 1970. 126 p. (W. Sinning)
Ss were 50 college athletes representing 4 varsity sports. All Ss were tested for height, weight, 8 skeletal diameters, 6 skinfold measurements, the ponderal index, and body density. Multiple correlations as well as multiple regression equations were used to determine relationships. Results indicated that anthropometric measurements of skeletal diameters and skinfolds can be used for the estimation of selected components of body composition in athletes. The Behnke technique for estimating lean body weight in athletes gives a precise estimate but it is not as practical a technique as regression equations computed for the same group. A combination of skeletal diameters and skinfold measurements gives a more precise estimation of body density than either one used by itself.

474. FRENCH, Larry D. A study ot determine the relationships among trunk rotation strength, leg strength, and the velocity of swinging a baseball bat. M.S. in Physical Education, 1970. 40 p. (E. Steitz)
Ss were 30 male candidates for a college freshman baseball team. Trunk rotation strength was determined by cable tensiometer methods. The back and leg dynamometer was used for assessing leg strength, and bat velocity was ascertained by using the Marathon Bat with a built-in gauge which registered the velocity in mph. The Spearman rank-order correlation was used to assess the relationships among the 3 dependent variables. There were significant positive correlations between leg strength and bat velocity (rho = .42), leg strength and trunk rotation strength (rho = .37) and trunk rotation strength and bat velocity (rho = .50), all at the .05 level.

475. GORDON, Roy M. A comparison of performance times of a batting swing from three starting bat positions. M.S. in Physical Education, 1970. 49 p. (E. Steitz)
Ss were 20 candidates for a freshman baseball team who were tested for the speed with which they could swing a baseball bat from 3 starting bat positions. These were extended arm with bat vertical, extended arm with bat horizontal, and bent arm. Results revealed that the 2 extended arm techniques were significantly faster (P <.05) than the bent arm position.

476. HEGMANN, Edward H. A comparative study of the aluminum and steel tennis rackets. M.S. in Physical Education, 1970. 38 p. (E. Steitz)
Five different types of tennis rackets (3 steel, 2 aluminum) were tested for air resistance and flexibility of the frames, and the velocity with which the ball left the racket. It was found that the air resistance of the steel tennis racket was significantly less than that of the aluminum tennis rackets. The flexibility of the steel rackets was significantly greater than that of the aluminum rackets. The velocity of the ball after being hit by the steel tennis rackets was significantly greater than when hit by the aluminim tennis rackets.

477. HOAR, Leslie Ann. Learning of a skill by ambidextrous practice. M.S. in Physical Education, 1970. 48 p. (C. Shay)
Ss were 20 female graduate and undergraduate college students, ranging in age from 18 to 29 years, and assigned to 1 of 2 groups. One group practiced only with the dominant hand while the other group practiced with both hands. The Cornish Handball Thirty-second Volley and Power tests were administered to all Ss before and after the practice period. ANCOVA indicated that learning of the volley skill can be facilitated by ambidextrous practice during the learning process. However, the power of the dominant hand cannot be increased by practicing with both hands

478. JORDAN, Willie J. Intramural sports for boys in selected Georgia high schools. M.S. in Physical Education, 1970. 195 p. (W. Doss)
The questionnaire-survey was used to collect data from PE directors, athletic directors, PE teachers, and principals in 173 schools. Percentage analysis was used to describe the data. Findings revealed that, in a majority of the SHSs, boys were not given the opportunity to participate in intramural sports. Major reasons for the lack of intramural programs were inadequate teacher personnel, and insufficient time and transportation for students. The author offered a series of general suggestions for improvement.

479. KINGRA, Harpal Singh. Attitudes of male students of three government teachers training colleges in Punjab, India toward physical education activities. M.S. in Physical Education, 1970. 69 p. (C. Shay)
The Wear Physical Education Attitude Inventory was administered to 180 Ss at 3 colleges in Punjab, India, to determine their attitudes toward PE as an activity course. Ss were divided into 2 groups on the basis of participation or nonparticipation in the physical activity, on the basis of interscholastic competition and noninterscholastic competition, on the basis of those who earned distinction in physical activity and those who did not, and on the basis of those who lived in rural areas and those who lived in urban areas. It was found that a large majority of Ss had a favorable attitude towards PE. There was no difference in attitude between those who participated in physical activity and those who did not, or between those who lived in rural areas and those who lived in urban areas. Those who participated in interscholastic competition had a less favorable attitude than those who did not compete, and those who earned distinction in physical activity had a more favorable attitude than those who did not earn distinction.

480. LACOSTE, Pierre. Comparison of the accuracy between the forehand and backhand sweep pass with straight stick and curved stick in ice hockey. M.S. in Physical Education, 1970. 55 p. (A. Kidess)
Ss were 10 ice hockey players from 14 to 16 years of age. Five were right-handed passers and 5 were left-handed passers. They were required to pass at a moving target and were awarded different point values for hitting different parts of the target. Each S used both the straight and the curved sticks, and passed forehand and backhand from two distances, for a total of 240 trials. Nonsignificant differences were found between the 2 types of sticks at each distance and for both the forehand and backhand passes.

481. LAIRD, E. Marie. Comparison of aggressive responses among and between women athletes and nonathletes at three educational levels. D.P.E., 1970. 136 p. (H. Paar)
Women Ss (N = 207) were selected from 3 JHSs, 5 SHSs, and 4 colleges which offered interscholastic basketball and/or field hockey. The Rozenzweig Picture-Frustration Study was administered to the Ss to measure aggression. ANOVA indicated that athletes direct their aggression at themselves, whereas nonathletes direct their aggression at the environment. Nonathletes tend to gloss over a frustrating situation, while athletes tend more to gloss over it. Nonathletes at the JHS and SHS levels are more concerned with protection of the ego than are athletes, but the reverse is true at the college level.

482. LIANG, Thean-Chong. A development of an acceptable master's program in physical education for graduate studies in Taiwan, China. M.S. in Physical Education, 1970. 153 p. (A. Kidess)
Data were collected through the use of questionnaires, institutional catalogs, and personal correspondence. Initial questionnaires were sent to physical educators in the U.S. and educational and PE authorities in Taiwan. From the results of these questionnaires, 26 courses were identified and recommended for master's study in Taiwan. These 26 courses were used for the construction of a model graduate curriculum in physical education. Another questionnaire was then sent to a jury of experts in Taiwan requesting their opinions regarding the 26 courses. A program designed for the preparation of teachers and administrators in PE at the masters level in Taiwan was then developed. This curriculum consisted of 21 courses (8 required and 13 elective), with the recommended major concepts and subject matter of each course.

483. LITTARITZ, Lowell E. A study to determine the relationship of baserunners sacrificed by bunting to runs scored. M.S. in Physical Education, 1970. 29 p. (C. Shay)
Data used in the study were taken from the official scorebooks of a college varsity baseball team for the years 1957, 1958, 1965, 1967, 1968, and 1969. Treatment of the data was by percentage analysis and the findings showed that 62% of the runners advanced by the sacrifice bunt eventually scored. The sacrifice bunt was used in key situations 57% of the time and, of the runners who advanced in these situations, 58% scored. In key situations, when the bunt was not used, 44% of the runners were forced out and 41% of the runners were lost through double plays.

484. MEADORS, William J. The history of the National Federation of State High School Athletic Associations. D.P.E., 1970. 399 p. (E. Steitz)

Data for this study were secured from NFSHSAA files and publications, interviews, correspondence, textbooks, scholarly writings, and a questionnaire. It was concluded that the NFSHSAA has provided leadership in purpose and action in the area of interscholastic athletics and concerned itself with the health and safety of the athlete. The Federation has represented its member associations so that they might have an impact on interscholastic athletics in this country. Included was a section concerning recommendations for improving the efficiency and effectiveness of the Federation.

485. MECKERT, Arthur E. The effect of using an eight, twelve, and sixteen pound shot in beginning shot put performance. M.S. in Physical Education, 1970. 44 p. (C. Shay)

Ss were 24 male college students majoring in PE and enrolled in track and field techniques skill classes. Ss were randomly assigned to 1 of 3 treatment groups which practiced with 8-, 12-, and 16-lb. shots, respectively, for 7 consecutive days. All Ss were tested before and after the practice period using the 12-lb. shot. ANCOVA was utilized in the treatment of the data and it was found that there were no significant differences ($P > .05$) among the 3 groups.

486. MOORE, Archie F., Jr. A comparison of two fielding techniques by baseball outfielders. M.S. in Physical Education, 1970. 55 p. (E. Bilik)

Ss were 10 college varsity baseball players between the ages of 19 and 22 years. All Ss were tested on the 2 methods of fielding a ground ball in the outfield; the side-straddle method and the one-handed scoop method. The criterion was a measure of time that the players spent in fielding a ground ball and throwing to a predetermined target. This was assessed by a Dekan Performance Analyzer. The mean score for the side-straddle method was 3.45 and for the one-handed scoop method was 3.44, a nonsignificant difference ($P > .05$).

487. MOORE, Jean Tilman. Personality variables between selected female high school interscholastic sports participants. M.S. in Physical Education, 1970. 96 p. (C. Shay)

Ss were 158 girls from 3 participating schools who were varsity interscholastic team members. Ss were placed in 1 of 3 groups: team sport member, individual sport member, or a combined sport member. Cattell's High School Personality Questionnaire was administered to the Ss at the beginning of each sport season. ANOVA was used to determine significant differences among the 3 groups for each of the 11 variables measured by the personality questionnaire. Significant differences ($P < .05$) were found between the 3 groups on the variables of ego strength, superego, coasthenia, and guilt proneness. The individual sport group was significantly higher than the team sport group on ego strength, and coasthenia, and significantly higher than the team sport group on superego and guilt proneness.

488. MUNCH, Louis R. Selection and retention procedures for undergraduate male physical education majors. D.P.E., 1970. 330 p. (J. Parks)
Through a comprehensive review of all related literature and a case study of 12 selected "quality professional preparation programs" (designated by a qualified panel), specified criteria and administrative practices for the selection and retention of undergraduate male PE majors were investigated. In order to improve the research technique utilized, a special rating scale and tape-recorded interviews with the selected institutional personnel were employed. Both actual and recommended practices for institutional admissions, selective admission of PE, and selective retention for PE were studied. Command of the English language (oral and written) and rank in SHS graduating class were found to be the most important selection criteria. For retention, staff evaluations of professional promise and academic achievement in student teaching were cited as the most essential factors.

489. MUNSON, John. A compilation of lacrosse one-down defensive theory, strategy, and diagrams against six common offensive alignments as described by varsity college coaches in 1970. M.S. in Physical Education, 1970. 131 p. (E. Steitz)
Coaches of college varsity lacrosse teams in the U.S. were asked to respond to a questionnaire involving lacrosse strategy. Fifty-four coaches responded. Results of the questionnaire were categorized into 3 major areas: criteria used in selecting the one-down defenseman; concepts, practices and drills for teaching one-down defense; and theories and strategy of one-down defense as reported in diagrams against 6 selected offensive patterns. Compilation of one-down defensive alignments was included.

490. POITRAS, Jean Guy. The scoring merits of the backhand and forehand shot in outmaneuvering the goal tender in ice hockey. M.S. in Physical Education, 1970. 36 p. (C. Shay)
Ss were 12 members of a college hockey team, tested during practices over a 6-wk. period. S had 4 trials on each side of the goaltender each week. The number of goals made with both forehand and backhand shots was recorded. A *t* test showed that the backhand shot was significantly more effective ($P < .05$) than the forehand shot in scoring goals on "breakaway" situations.

491. PRABHAKER, Anand B. A development of an improved undergraduate program in physical education in India. M.S. in Physical Education, 1970. 71 p. (J. Parks)
Data for this study were obtained from the catalogues of 9 A graded institutions in the field of PE and from the responses made to a questionnaire by 15 leading physical educators in India. It was found that PE programs in India lacked adequately trained teachers, funds, equipment, and time. Several suggestions for improvement were presented and the author proposed a model curriculum consisting of 5 general education courses, 3 basic science courses, 5 professional courses, and 22 major courses.

492. PRIDDLE, Ruth E. The preparation of a model undergraduate dance major curriculum for university and college. M.S. in Physical Education, 1970. 319 p. (C. Shay)

Data for the model evolved from a survey and analysis of the related literature concerning undergraduate dance major curriculums in the U.S., and a questionnaire that was sent to administrators, dance educators, and artists involved in the field of dance in higher education. A final model was determined from a comparison of all the models derived and combined with recommendations suggested by the review of literature.

493. SMITH, Donald B. The development of a test to measure the knowledge of football spectators. M.S. in Physical Education, 1970. 44 p. (C. Shay)

A football knowledge test was developed using a written question sheet in combination with a film showing action sequences. The test was administered to 32 persons considered to be football experts and 32 persons who were spectators but not experts. The expert group attained a mean score of 91.75 and the nonexpert group a mean score of 40.50, a difference significant at the .01 level.

494. THAXTON, Nolan A. A documentary analysis of competitive track and field for women at Tuskegee Institute and Tennessee State University. D.P.E., 1970. 350 p. (J. Genasci)

Tape-recorded interviews and questionnaires were used to secure information from those individuals who had been involved with the women's track and field programs at both colleges. It was concluded that both colleges had a definite influence on the development of track and field for girls and women in the U.S. Students were not primarily responsible for the track and field programs for women at the institutions.

495. THOMAS, James. Relationships between body size, proportion and composition variables and performance in the standing broad jump and pull-ups. D.P.E., 1970. 121 p. (M. Thorsen)

Data consisted of 26 body size variables, 13 body proportion variables, 2 body composition variables, and 2 performance test variables. Ss were 18- to 24-year-old Caucasian males (N = 198) randomly selected from 485 Air Force Base personnel. Treatment of the data by multiple regression analysis showed that: Body size, particularly measurements of the lower portion of the body, has a high inverse relationship to pull-up performance but does not appear to be a factor pertinent to standing broad jump performance. Body proportion is associated with standing broad jump performance but is not a major factor in regard to pull-up performance. Body composition is associated with both pull-up and standing broad jump performance.

496. WISSEL, Harold R. The effects of three physical conditioning programs for junior high school basketball players. D.P.E., 1970. 243 p. (E. Seymour)

Ss were 35 boys, 13 to 15 years of age, who were members of 3 JHS basketball teams in New Jersey. They were randomly assigned to 1 of 3 groups at each school. One group (11 Ss) participated 3 days/wk. in weight training and 2 days/wk. in interval training. A second group (12 Ss) participated in circuit training 5 days/wk. The third group (12 Ss) participated in basketball drills 5 days/wk. All Ss participated in team practice and games. The training period was 5 wk. in duration and all Ss were tested before and after the training program for strength, muscular endurance, circulatory-respiratory endurance, and basketball skills. ANCOVA was used to determine differences among groups, while a correlated t test was utilized to assess differences within groups. Results indicated that the 3 conditioning programs were equally effective in improving muscular endurance and circulatory-respiratory endurance. The weight training and circuit training programs were more effective than the basketball drills program in improving basketball skills.

**Stanford University, Stanford, California** (J. E. Nixon)

497. REID, James P. The San Diego City-County Camp Commission (case study of an organization). Ed.D. in Physical Education, 1970. 374 p. (J. E. Nixon)

A camping-outdoor education program in operation for a quarter of a century was the impetus for a case study of the SDCCCC. Three basic areas were emphasized: its history, organizational structure and functions, and viewpoints of those associated with the organization. Primary sources of information were official min. of the SDCCCC and taped interviews. Analysis revealed essentially 3 elements which contributed to the success of the organization and its programs: the broadly-based community representation and participation; the well-regarded science-conservation emphasis of the outdoor education program; and the finely meshed structure of organization and administration with the county government in the lead role, ably supported by the city and the schools.

498. RICKARD, Rodger S. An explication of the role of aesthetic-value in American physical education: A conceptual analysis of physical education literature. Ed.D. in Physical Education, 1970. 127 p. (J. E. Nixon)

Determined was the ebb and flow of aesthetic value through the years of professional development, 1885-1970, while changes were described in the thinking of American physical educators, as expressed in their writings, regarding the role of aesthetic value in PE. In order to identify the observations about the aesthetic functions of PE, statements were selected if they referred directly to the Aesthetic and/or artistic nature of PE or if they referred to the formal, expressive, or sense qualities of human movement as reflected in the major views of aestheticians, Clive Bell and Roger Fry, Susanne Langer, Rudolph Arnheim, and John Dewey. Source materials found in American PE journals, yearbooks, conference and convention proceedings, and doctoral dissertations were used to relate changes in aesthetic thought to the trends affecting the development of the profession. Professional interest in the aesthetic qualities of human movement has never been of primary concern to the profession, although aesthetic value has had an ebb and flow that is directly related to the primary objectives of health and physical fitness and the social and educational values.

**Temple University, Philadelphia, Pennsylvania** (B. D. Franks)

499. ARNOLD, Jay B. The relationship between hypnosis and the learning of two selected motor skills. Ed.D. in Physical Education, 1969. 69 p. (P. M. Day)

500. BIERSCHEID, Robert L. A study of the effects of utilizing three methods of programed instruction on selected motor skills in bowling and the knowledge of bowling etiquette and safety. Ed.M. in Physical Education, 1969. 62 p. (T. W. Evaul)

501. BREFFITT, Roland F. The effect of trampoline training on selected factors of motor performance. Ed.M. in Physical Education, 1969. 61 p. (D. H. Hilsendager)

502. CHEFFERS, John T. F. A cinematographical comparison of seven aspects of two shot put actions. Ed.M. in Physical Education, 1970. 96 p. (L. E. Kindig)

503. DOUGHERTY, Neil E., Jr. A comparison of the effects of command, task, and individual program styles of teaching in the development of physical fitness and motor skills. Ed.D. in Physical Education, 1970. 130 p. (T. W. Evaul)

504. EGGERS, John R. Mechanical elements of human movement: An identification and evaluation of their concepts. Ed.M. in Physical Education, 1970. 80 p. (T. W. Evaul)

505. GALLAHUE, David L. The role of movement and vision in visual-motor adjustment to optical rearrangement. Ed.D. in Physical Education, 1970. 97 p. (P. M. Day)

506. HENRY, Mrs. Malvery E. The validation of a test on field hockey skill. Ed.M. in Physical Education, 1970. 84 p. (D. H. Hilsendager)

507. HOHN, Richard C. The effects of temporary sensory deprivation on the efficiency of the kinesthetic sense. Ed.D. in Physical Education, 1970. 78 p. (P. M. Day)

508. HONDRAS, Thomas N. Comparison between training programs of running, games and sports, and three different strength regimes on physical fitness. Ed.D. in Physical Education, 1969. 123 p. (D. H. Hilsendager)

509. JOHNSTON, Judith E. Effects of imagery on learning the volleyball pass. Ed.D. in Physical Education, 1970. 74 p. (L. E. Kindig)

510. JOHNSTON, J. William. The relationship of selected social, economic, and educational variables to participation in a college co-curricular activities program. Ed.M. in Physical Education, 1970. 50 p. (J. G. Youmans)

511. LEMCKE, John D. Generality and specificity in learning and performing selected gross motor tasks. Ed.D. in Physical Education, 1970. 207 p. (J. B. Oxendine)

512. LOOCKERMAN, William D. Relationship of choice hand and total body reaction times. Ed.D. in Physical Education, 1970. 64 p. (R. A. Berger)

513. MCDERMOTT, L. A. The effect of different sound intensities on the learning of a gross motor skill. Ed.D. in Physical Education, 1969. 73 p. (R. D. Liverman)

514. O'DONNEL, Leo E. The effects of post-hypnotic suggestion on the learning of aquatic skills and the degree of fear among beginning swimmers. Ed.D. in Physical Education, 1970. 96 p. (P. M. Day)

515. UNDERWOOD, Carol S. The relationship between body type and body fat and personality factors of college women. Ed.D. in Physical Education, 1970. 159 p. (L. E. Kindig)

516. VODOLA, Thomas. The effects of participation time variations on the development of physical fitness, motor skills, and attitudes. Ed.D. in Physical Education, 1969. 158 p. (D. H. Hilsendager)

517. WEINBERG, Herman. Effects of presenting varying specificity of course objectives to students on learning motor skills and associated cognitive material. Ed.D. in Physical Education, 1970. 85 p. (T. W. Evaul)

518. YOUNG, Gloria M. An analysis of selected mechanical factors, and accuracy in tennis strokes as related to ball velocity and skill level. Ed.D. in Physical Education, 1970. 123 p. (L. E. Kindig)

519. ZERBE, Anna J. A cinematographic analysis of two hand positions in field hockey drives for novice and advanced players. Ed.D. in Physical Education, 1970. 144 p. (L. E. Kindig)

**University of Tennessee, Knoxville, Tennessee** **(E. K. Capen)**

520. BENNETT, Barbara M. A comparison of two different instruments in measuring body fat at selected sites. M.S. in Physical Education, 1970. 32 p. (A. J. Kozar)

Caucasian college students (N =15) had skinfold measurements taken at 3 sites by a skinfold caliper and a drawing compass, measured in mm. A split-plot design was used. ANOVA was used to determine whether the difference between instrument-by-location interaction, between instruments, or between locations was statistically significant at the completion of the measurements. There was no evidence that the 2 instruments provided readings which differed more at 1 location than at another, and the 2 instruments differed. The drawing compass can be used for gross measures of skinfold fatness in studying changes that occur as a result of exercise or nutritional programs.

521. COLLINS, Peggy Elizabeth. Grading physical education on the fifth and sixth grade level. M.S. in Physical Education, 1970. 72 p. (S. A. Venable)

Data were collected by a questionnaire distributed to ele. classroom teachers (N = 50). Results of the questionnaire indicated that a new, more efficient grading system is needed, that methods and materials used in the PE class did not correspond to the established objectives of the class, and grading factors used to determine the grade were questionable.

522. CORBIN, Richard Durham. Proposed initial programs for organized physical education in the school system of Lumpkin County, Georgia. M.S. in Physical Education, 1970. 81 p. (G. F. Brady)

Programs for organized PE in a rural North Georgia county were studied. An extensive review of literature was made to gather facts, opinions, and trends that could have an impact on the programs. Separate programs were developed for the ele., JHS, and SHS and organized to serve as a guide for the county PE supervisor. Administrative factors that are pertinent to a supervisor in the implementation of a new program were outlined. Activities for each of the programs were selected because they created progression and supported the needs of the students at a particular grade level.

523. DONNELL, Sue E. A comparison of selected tennis skill tests in measuring and evaluating the achievement level of college women. M.S. in Physical Education, 1970. 33 p. (Nancy Lay)

The Broer-Miller Achievement Test, the Kemp-Vincent Rally Test, the Hewitt Revision of the Dyer Backboard Test, and rank-order of advanced players were intercorrelated by linear R. The purpose was to determine which test most accurately measure S's playing ability. Ss were selected on the criterion of tennis skill as exemplified in advanced playing ability. Twelve advanced players were administered the skill tests. Eight of these participants were designated rank-order, as determined by 2 months of challenge competition. The Broer-Miller Achievement Test correlated highest with the rank-order of players ($r = .62$) and was the only test found significant ($P < .05$). The Kemp-Vincent Rally Test indicated a low correlation with the other skill tests and rank-order; whereas the Hewitt Revision of the Dyer Backboard Test correlated .59 with the Broer-Miller Achievement Test and .44 with rank-order. The Broer-Miller Achievement Test was the single most effective measurement in the assessment of advanced playing ability in tennis.

524. GASTON, Patricia A. A comparison of grip strength and wrist strength measurements of selected women golfers. M.S. in Physical Education, 1970. 40 p. (P. Boroviak)

Grip strength and wrist strength measurements (dorsal, palmar, radial, and ulnar flexion) were taken on advanced (N = 12) and beginning (N = 12) women golfers. A significant difference was noted in favor of the advanced group in the palmar, radial, and left ulnar flexion measurements. The most significant differences were noted in the left palmar, radial, and ulnar flexion measurements.

525. GILLESPIE, Edward G. A study of the problems encountered by some Tennessee high school football coaches. M.S. in Physical Education, 1970. 39 p. (S. A. Venable)

Determined was the effect of size of school or winning season on the type of problems met by coaches. The selected coaches were sent a questionnaire containing problems involved in coaching. Findings were that the coaches from the 3 classifications had similar problems and listed similar problems.

526. GILLEY, William F. An investigation of intraindividual variation during performance of a muscular strength test. Ed.D. in Physical Education, 1970. 81 p. (E. K. Capen)

527. GODFREY, James M. A comparison of wood and Tartan gymnasium floors as to resilience and traction. M.S. in Physical Education, 1970. 46 p. (A. J. Kozar)
Undergraduate male students (N = 30) enrolled in a required PE class performed the chalk reach vertical jump test and the zig-zag run agility test on 2 floors, 1 of wood, and 1 of synthetic Tartan. Results showed the wood floor to be better for jumping, by an average of 1.13 in., and the Tartan floor to be better for running, by an average of .97 sec. Both differences were significant (P < .01).

528. HALE, Doris L. A comparative study of three methods of measuring arm and shoulder-girdle strength. M.S. in Physical Education, 1969. 32 p. (P. C. Boroviak)
Ss were divided into 3 groups and tested on the modified pull-up, the bent-arm hang, and the cable tensiometer strength test. Comparisons were made between the bent-arm hang and the modified pull-up, the bent-arm hang and the cable tensiometer strength test, and the modified pull-up and the cable tensiometer strength test. It seemed evident that the bent-arm hang and the modified pull-up were not valid measures of arm and shoulder strength, as compared to the cable tensiometer strength test.

529. HOUGH, Josephine E. A film analysis of the glide kip. M.S. in Physical Education, 1970. 62 p. (H. B. Watson)
Women gymnasts (N = 3) were filmed performing the glide kip mount on the uneven parallel bars. The film was analyzed to determine the most prevalent causes for unsuccessful performance of the skill. It was found that failure to keep the chin tucked, insufficient leg thrust, and failure to keep the elbows straight were the most common causes.

530. JONES, Lucia E. The effect of a movement pattern on badminton playing ability. M.S. in Physical Education, 1970. 37 p. (P. Boroviak)
An experimental group (N = 10) performed a movement pattern twice a week for 8 wk. in addition to practicing the skills involved in the game of badminton. A control group (N = 10) only practiced the skills involved in the game. An attempt was made to measure the effect of the movement pattern upon badminton playing ability, as determined by a player's success in a singles round robin tournament. Results showed that there were no significant differences between the 2 groups as measured by the Wilcoxon Rank Sum Test.

531. LENEHAN, Rita J. A study of the contribution of selected fundamental factors to success in women's university intramural basketball. M.S. in Physical Education, 1970. 63 p. (G. Brady)
Analysis of data collected on teams participating in a university intramural tournament indicated that the winners were consistently superior to the

losers in offensive skills; that there was very little difference between their usage of passes and of the 2 types of defense; there were some differences between their ball handling skill; and that although neither the winners nor the losers consistently moved to shoot a goal or to receive a pass, whenever movement did occur, the winners moved more often than did the losers.

532. LYTLE, George Dudley. A comparison of the physiological and psychological test results of two summer remedial language arts and physical education programs. M.S. in Physical Education, 1970. 70 p. (S. A. Venable)
Two Title I programs under the Elementary-Secondary Education act of 1965 were studied to determine the physiological and psychological effects that each program would have on the students in the 3rd, 4th, 5th, and 6th grades. Ss were tested and retested in the areas of written and physical examinations during the 1968 and 1969 summer programs, and then the results of the 2 programs were compared. In 1968 the program lasted for 6 hr. a day and then in 1969 was cut to 3 hr. a day. Research tools were an intellectual achievement test, a physical fitness test, a personal and social adjustment test, a reading test, and a school attitude test. Results of these tests in 1968 and 1969 were then compared to determine the effect the program had on the children emotionally, intellectually, socially, and physically.

533. McCABE, John F. A comparison of two practice schedules to achieve bilateral skill in lacrosse cradling. M.S. in Physical Education, 1970. 28 p. (A. J. Kozar)
Volunteer male students (N = 30), required PE students, were assigned to either a continuous practice schedule (N = 15) or an alternate practice schedule (N = 15) in learning to cradle a lacrosse stick on both sides of the body. Results indicated no significant difference between the 2 practice schedules, although there was a large difference in the raw score means.

534. POMILLA, Frank T. The effect of conditioning upon vital capacity. M.S. in Physical Education, 1970. 40 p. (H. G. Welch)
Male Ss (N = 10) were selected and divided into 2 groups. The control group consisted of 5 physically active Ss who were used to determine whether or not a S could increase his vital capacity through repeated exposures to the respirometer. The experimental group consisted of 5 less active Ss who trained 3 days/wk. for 8 wk. upon a Monark bicycle ergometer. This group was used to determine the effect of conditioning upon vital capacity. Control group data showed that active Ss do have greater vital capacities than sedentary individuals and that some learning does occur during spirometric testing. The experimental group's results did not show significant increases in FVC, $FEV_t$, or FVC%. The obtained values were not conclusive enough to claim that conditioning does affect vital capacity.

555. STANTON, Martha Franklin. The relationship of dynamic balance to initial ability to learn a synchronized swimming stunt. M.S. in Physical Education, 1970. 43 p. (C. Johnson)
Women students (N = 20) randomly selected after a 9-wk. instructional period in beginning swimming were given 3 trials of the Bass Stepping

Stone Test of Dynamic Balance, and the mean of the scores was taken. They were taught the kip, a synchronized swimming stunt, and the mean was taken of the scores given by 3 judges on 3 trials of the kip. A linear r performed on the data indicated there was almost no relationship between the 2 variables. This low r was probably due to the fact that some subjects were unable to perform the kip at all.

536. SWINDLER, Susan C. The relationship between cardiovascular endurance as measured by a twelve-minute run, and other components of physical fitness as measured by the shuttle run, sit-ups, and pull-ups. M.S. in Physical Education, 1970. 27 p. (C. J. Johnson)
Male college students (N = 19) were given a physical fitness test which consisted of 2-min. sit-ups, pull-ups, and a 250-yd. shuttle run. They were also tested on cardiovascular fitness by a 12-min. run-walk for distance. A multiple correlation measured the combined relationship of the independent variables (sit-ups, pull-ups, and the shuttle run) to the dependent variable (12-min. run-walk). The multiple correlation coefficient was .56 ($P < .05$): ANOVA produced an insignificant F ratio of 2.50 ($P > .05$). Evidence indicated that those students who possessed a high degree of physical fitness did not possess a high degree of cardiovascular endurance.

537. VANN, Sudartha E. The effect of exercise on selected skinfold and girth measurements and weight of high school women. M.S. in Physical Education, 1970. 51 p. (G. Brady)
Ss (N = 20) were measured (skinfold and girth) 3 times, at the beginning and conclusion of an 8-wk. exercise program, and again 8 wk. after the exercise program had been concluded. Areas measured were the waist, hips, and thighs. Results showed a high level of significance in the circumference and skinfold of the waist, the circumference of the hips, and the skinfold of the thigh. The skinfold of the hips, the circumference of the thigh, and the weight were of no significance.

538. WILSON, George Dennis. An evaluation of a portable field method for measuring oxygen uptake. M.S. in Physical Education, 1970. 36 p. (H. G. Welch)
The maximum oxygen uptake test has been generally recognized as an excellent measure of human physical fitness. However, most testing in this area has been done under controlled conditions in the laboratory. Devised was a test portable in nature with field testing in mind. All components of the experiment were lightweight and mobile. The crux of the experiment was in the use of the portable electronic oxygen analyzer--the Beckman Fieldlab Oxygen Analyzer 100800--and its relationship to the established Haldane chemical analyzer. Errors in the measurement of the oxygen uptake using the Beckman apparatus as opposed to the Haldane were greater than expected. These errors were thought to be in the calibration of the Beckman analyzer.

**University of Texas at Austin, Austin, Texas** (L. McCraw and J. H. Haag)

539. BENEDICT, Irvin J. Analysis of health-related textbooks adopted in Texas, 1935-1965, in relation to their coverage of communicable diseases prevalent during the period. Ed.D., 1968. 267 p. (J. H. Haag)

540. DEES, Myron Henry. Status of health education in selected Texas secondary schools in 1966. Ed.D., 1968. 190 p. (J. H. Haag)

541. FLETCHER, Linda K. An investigation of nutrition quackery, 1950-1959. M.Ed., 1969. 261 p. (J. H. Haag)

542. HARTUNG, George Harley. Cardiac electrical activity during exercise and recovery in trained and nontrained subjects. Ph.D., 1970. 162 p. (D. E. Campbell)

Ss, 12 trained endurance athletes and 12 healthy university students, were given the Master "two-step" test and performed the treadmill test. Specific variables were measured at heart rates of 110, 130, 150, and 170 beats per min. during exercise and rates of 130 and approximately 90 in recovery. A significant difference between the groups was found in the standing resting heart rate, the time to reach each heart rate level during exercise, and the external work accomplished at each level. Significant trends in electrocardiographic components were found for both the trained and nontrained groups in the T wave amplitude and the Q-Tc interval during exercise and recovery.

543. NOBLE, Marion L. A comparison of the effects of isometric and isotonic training programs on relative-load isometric and isotonic muscular endurance. Ph.D., 1970. 134 p. (L. W. McCraw)

College males (N = 64) demonstrated muscular strength and endurance in arm flexion-forearm extension and in thigh extension-leg extension. ANCOVA was used to compare treatment effects of the 2 training programs, and the relationship between muscular strength and endurance was determined through correlations. Results were somewhat inconclusive in that differences in training effects which were significant for one test of endurance, were almost significant for another, and were insignificant for 2 of the tests.

544. KLEPPINGER, Claudia Jane. The influence of a physical education program on the illnesses and accidents of mentally retarded students. M.Ed., 1970. 49 p. (L. W. McCraw)

Students (N = 223) of the Austin State School participated in this study. The chi-square method of analysis was used to determine any significant difference attributable to the PE program. It was found that there was a significant decrease in total frequency of illness for both boys and girls, but that there was a significant increase in the total number of accidents for boys, and those students with extremely low motor ability had more accidents than expected.

545. SHANNON, Charley H. Heart rates of three age groups of normal and mentally retarded boys. Ph.D., 1970. 139 p. (D. E. Campbell)
Adolescent boys (N = 85) were used as Ss, 45 boys having normal intelligence. Heart rates were measured prior to, during, and after a graduated exercise performance on a treadmill. It was concluded that mentally retarded Ss gradually fell behind the normal Ss in measured heart rates. Recovery heart rate improves with chronological age in normal Ss but does not improve with age in retardates. Indications are that the capacity for exercise declines with age in retardates and that the capacity for exercise becomes significantly different between normal and retarded as chronological age increases.

546. SHERRILL, Jane G. P. Chiropractic in Texas, 1968. M.Ed., 1970. 100 p. (J. H. Haag)
At least 84% of the 1,406 licensed Texas chiropractors were graduated from the Texas Chiropractic College, Palmer School of Chiropractic, and Carver's Chiropractic College. Of the 84%, 56% were graduated from the Texas Chiropractic College. Most of the 1,406 Texas chiropractors were licensed in 1949. Bexar, the county in which the Texas Chiropractic College was first located, had the largest number of chiropractors registered. Chiropractic diagnosis is usually made by spinal analysis. Subluxation is considered an important element in chiropractic practice. Treatment centers around spinal adjustment, which is manually delivered. Texas chiropractors were licensed by Article 4512b, 1949, Texas statutes. Chiropractors use a variety of modalities. Pamphlets and advertisements from chiropractors indicate the illnesses and ailments which chiropractors can treat.

547. MAXWELL, Pauline T. The development of a programed instruction test in basic rebound tumbling skills. M.Ed., 1970. 107 p. (M. B. Alderson)
This method book is designed to aid in teaching large groups, with consideration for individual needs and abilities. It provides a method for learning the skills mentally before attempting them physically, and aids in eliminating lengthy explanations and instructions. It can also be used as a reference. Information for this book was obtained from library research and personal teaching experience.

548. TYSON, Kenneth W. A handball skill test for college men. M.Ed., 1970. 49 p. (L. W. McCraw)
Male college students (N = 64), all having previously taken a handball course, were Ss. Upon completion of a round robin singles tournament, they were given a handball skill test which included a 30-sec. volley test, front wall kill test with dominant hand, front wall kill test with nondominant hand, ceiling shot test with dominant hand, ceiling shot test with nondominant hand, back wall kill test with dominant hand, and back wall kill test with nondominant hand. Statistical analysis revealed that handball playing ability would best be indicated by the volley test, plus 3 items involving use of the dominant hand. The volley was the best single item.

549. WALKER, June. Pain parameters of athletes and nonathletes. Ph.D., 1970. 137 p. (W. Wyrick)
Females (N = 48) enrolled in Southwest Texas State College and Temple Junior College served as Ss and formed an athletic and a nonathletic group.

The Pain Apperception Test was administered, and neuromuscular skill was determined by using the Hole Type Steadiness Tester. A Low Volt Therapeutic Generator provided the stimulation. It was concluded that apperception of pain was not related to any physical measure of pain, and also failed to distinguish between athletes and nonathletes. Pain tolerance did not vary by arm or condition of distraction. Neuromuscular skill performance was superior in the preferred hand.

550. WILLIAMS, Darrell Hugh. A comparison of breaking strength and maximum isometric strength in human muscle. M.Ed., 1970. 88 p. (L. W. McCraw)
Male college students (N = 108) were given 2 tests, 1 of resisting strength (breaking strength test) and the other of initiating strength (isometric strength test), to determine maximum strength responses. Ss were tested with a specially designed windlass for the breaking strength test, and the same equipment was used for the isometric strength test; however, the windlass was held fixed as force was initiated by the subject. Theories used to explain the tension responses of excised fibers may be an appropriate explanation of the resisting and initiating strength responses.

551. WRIGHT, Betty Lee. Alcohol education: Content and methods for secondary school health education. M.Ed., 1969. 211 p. (J. H. Haag)

**Texas A & M University, College Station, Texas** (L. J. Dowell)

552. DUNN, John P. The relationship between strength and selected social and personality factors. Ph.D., 1970. 146 p. (C. W. Landiss)
Boys (N = 469) in grades 5-12 were tested for static arm and leg strength, dynamic arm and leg strength, peer popularity, and Cattell's Personality Questionnaire was administered. Academic success was determined by the average of all grades S made for the 2 preceding semesters with daily attendance taken from the S's permanent record cards for the same period. Little relationship was found between strength and specific personality traits at any grade level. However, a definite positive relationship was found between measures of strength and popularity, with static strength having an overall higher relationship than dynamic strength, especially in the middle and upper grades. A high relationship existed between specific types of strength, i.e., static arm strength and static leg strength, while little relationship was found to exist between strength and either academic success or daily attendance at school.

553. FLETCHER, Raymond L. Selected personality characteristics and activity participation of male college freshmen. Ph.D. in Physical Education, 1970. 128 p. (C. W. Landiss)
Male students (N = 950) were tested to determine differences between personalities and participation in activity. The Edwards Personal Preference Schedule, an information checklist, and intramural records tend to indicate that SHS Ss participated primarily in team sports. College freshman students prefer team activities in intramurals, while intramural participants were more active in SHS than the nonparticipants. The high activity participants scored higher in Dominance, Heterosexuality, and Aggression

than did the low activity participants. The traits Achievement, Deference, and Endurance were associated with a low degree of activity participation.

554. WILLS, Keith C. Effect of different methods of instruction and practice on skill acquisition of a motor task. Ph.D., 1970. 123 p. (C. W. Landiss)

Freshman and sophomore college men (N = 140) were divided into 4 instruction groups: oral instruction with demonstration, oral instruction and loopfilm instruction, written instruction, and written instruction and loopfilm instruction in learning a new motor skill of juggling 3 tennis balls. Each instruction group was randomly assigned to 1 of 2 practice groups--physical practice or mental and physical practice. Each of the 8 groups practiced 3 days/wk. for 5 wk. Oral instruction with demonstration followed by physical practice resulted in the greatest skill acquisition of the methods studied. Written instruction with loopfilm and oral instruction with loopfilm, followed by physical practice, ranked 2nd and 3rd respectively.

## Texas Women's University, Denton, Texas (A. S. Duggan)

555. BAKER, Mary Joyce. A comparative study of the selected physical fitness level of selected physical education women teachers and selected women teachers of subjects other than physical education between twenty-seven years of age and forty years of age. M.S. in Physical Education, 1970. 100 p. (V. Hicks)

Tested was the level of physical fitness, as determined by Fleishman's Basic Fitness Tests, of approximately 30 PE women teachers and 30 women teachers of subjects other then PE who were between 27 and 40 years of age and who were teaching in SHSs in the Fort Worth Independent School District, Fort Worth, Texas, during the academic year 1968-1969. An attitude test toward PE was administered to the Ss before administering the physical fitness tests, to determine the relationship between the level of physical fitness components and expressed attitudes toward PE as measured by the Wear Physical Education Attitude Scale. There was no significant difference between the overall physical fitness of the 2 groups of Ss. Women PE teachers scored higher on the expressed attitude test toward PE than did the other teachers. There was no significant relationship between expressed attitudes and physical fitness levels of PE teachers and other teachers.

556. BARKMAN, Ruth B. The status of dance in accredited public senior high schools in the State of Virginia--1968-1969. M.A. in Dance and Related Arts, 1970. 389 p. (A. S. Duggan)

The investigation entailed a descriptive study to determine the status of dance in the curricula of accredited public SHSs in Virginia, comprised of grades 10-12. Data were collected through the distribution of an original questionnaire to 342 representatives of the accredited SHS. Data obtained from the respondents were tabulated and %'s were computed. The status of dance in the SHSs was summarized and recommendations made for programs of dance activities within the curricula of these schools. Recommendations were based upon those of selected leaders in the field of dance and/or PE as gleaned from the professional literature in which these recommendations are expressed, and based upon the investigator's experiences both as a student and as a teacher of dance.

557. BARNER, Teddie R. A determination of the student health behavior in selected high schools in Phoenix, Arizona. M.A. in Health Education, 1970. 56 p. (F. Hostetler)
The LeMaistre-Pollock Health Behavior Inventory was administered to 1,034 11th grade students in the Phoenix Union HS System to determine the status of student health behavior. Determination of student health behavior would aid in the development of a HE curriculum for the Phoenix Union HS System. A correlation was used to determine if the Ss were similar to those in the national sample with respect to the percentage of preferred responses in each of the 10 health content areas of the Health Behavior Inventory. There was a significant difference in the rank order of the content areas between the 2 populations. The percentages of preferred responses should be used as a basis for the selection of content areas for inclusion in a HE curriculum for the Phoenix Union HS System.

558. BONALI, Gloria A. Harriette Ann Gray: Her life and her career as a dancer, choreographer, and teacher from 1913 through 1968. Ph.D. in Dance and Related Arts, 1970. 322 p. (A. S. Duggan)
The various chapters were concerned with Harriette Ann Gray's early life, her educational background; her professional association with the Humphrey-Weidman Dance Company; her organization and direction of the Harriette Ann Gray Dance Company; her association with several Hollywood motion picture studios and the New Studio for Actors and Dancers in Hollywood, California; and her teaching throughout her career, with emphasis upon her philosophy and methods of teaching as reflected in the development of the Programs of Dance at the Stephens/Perry-Mansfield Camp and School of Theatre and Dance in Steamboat Springs, Colorado, since 1950, and at Stephens College in Columbia, Missouri, since 1956.

559. BOTTGER, Joan. The relationship between the percentage of buccal cell nuclei containing Barr bodies and the psychological musculinity-femininity indices of freshman and sophomore college women. Ph.D. in Physical Education, 1970. 135 p. (B. Myers)
Psychological femininity was ascertained by the M scale of the GZTS, the Mf scale of the MMPI, and a composite femininity evaluation obtained from the two psychological instruments. The sex chromatin data were secured from the buccal smear test and the modified Guard staining technique. A 100-cell assessment of each buccal smear specimen was conducted at 970x. The results were recorded in relation to the percentage of central, peripheral, and total sex chromatin positive cells. Results revealed no significant relationships between the percentage of central, peripheral, or total buccal cell nuclei containing Barr bodies and psychological femininity evaluation. Significant correlations were not obtained between the percentage of central or peripheral buccal cell nuclei and psychological femininity as measured by the MMPI. A low (+.21) significant ($P < .05$) correlation was achieved between the total percentage of buccal cell nuclei containing Barr bodies and psychological femininity as assessed by the MMPI.

560. CAMPOS, Sara. *A comparison of arm and shoulder girdle strength tests for the different age groups of junior high school girls*. M.A. in Physical Education, 1970. 83 p. (J. Rosentswieg)
Six tests of arm and shoulder girdle strength were administered to JHS age girls (N = 222). Test-retest reliability coefficients and intercorrelations were obtained. ANOVA was used to test the hypotheses of age differences for strength as measured by the bent-arm hang, the horizontal ladder, the modified push-up, the modified pull-up, and the dynamometric push and pull tests. Significant differences ($P < .05$) were found for the dynamometric tests that favored the older students. Because of the relatively low reliability coefficients of the dynamometric tests, it was concluded that the tests used did not discriminate between the different age groups of JHS girls in arm and shoulder girdle strength.

561. CHANEY, Dawn S. *An electromyographic study of the relationship between relaxation ability and changes in the performance of a motor ability and changes in the performance of a motor and a mental skill under induced tension*. Ph.D. in Physical Education, 1970. 120 p. (J. Rosentswieg)
College women (N = 48) were tested on a motor test, dart throwing for accuracy, and a mental test, memorization of random numbers. Muscle action potentials were monitored electromyographically. Stress was measured through galvanic skin responses and respiration rate. Ss were equated and randomly assigned to 3 treatment groups. For 6 wk., one group received instruction daily in techniques of relaxation, a second group received a placebo daily, and the third group received instruction daily in body mechanics. At the end, all Ss were retested with a verbal threat imposed to induce tension. Data indicated that the verbal threat did induce tension in all 3 groups. It was concluded that Ss trained to relax and control neuromuscular tension performed in a superior fashion on the mental task under induced tension than Ss not trained in techniques of relaxation. There was no statistical difference found between the groups on the novel motor skill which would indicate that the relaxation treatment was of no significant value in the performance of a novel motor skill under stress.

562. COCKRELL, Audrey E. *The relationship of hematocrit, hemoglobin, red blood cell count, and a measure of cardiovascular endurance among trained and untrained college women*. M.A. in Physical Education, 1970. 71 p. (B. E. Lyle, Jr.)
The relationship of hematocrit, hemoglobin concentration, red blood cell count, and a measure of cardiovascular endurance were obtained from measurements of trained and untrained college women. The trained group was comprised of 25 women engaged in competitive swimming, basketball, and track and field. The untrained group was comprised of 19 women enrolled in a folk dance or a modern dance class. ANOVAs indicated that there were no significant differences in hematocrit, hemoglobin concentration, red blood cell count and cardiovascular endurance between trained and untrained college women at the Texas Woman's University. However, a relationship was determined between hemoglobin concentration and cardiovascular endurance: untrained group, moderate to marked; trained group, highly dependable; and combined groups, highly dependable.

563. CRAFT, Carol. Evaluation of the effectiveness of Camp Nakanawa in the favorable development of temperament of its senior campers and counselors. M.A. in Physical Education, 1970. 110 p. (B. Myers)
The purpose was to ascertain the influence of an 8-wk. summer session at Nakanawa Camp for Girls, in Maycano, Tennessee, upon the temperament of 77 campers between the ages of 14 and 17 1/2 years, and upon the 11 cabin counselors who were directly responsible for that age group. Specifically, the campers and counselors were measured by the Guilford-Zimmerman Temperament Survey. In addition, the counselors were evaluated as to the effectiveness of their leadership in the group living situation by means of an administrative opinionnaire, and their temperament profiles were compared with profiles of the campers living in their cabin. Mean scores and standard deviations for initial and final administrations of the G-ZTS were computed for each temperament trait. Three conclusions were: senior campers were significantly more emotionally stable, objective, cooperative, and masculine as a result of being at camp for 8 wk. Counselors were significantly more generally active, socially bold, sociable, reflective, and masculine. Counselors rated as highly successful or successful in the group living situation had final temperament profiles similar to their campers' in 7 out of 10 cabins.

564. CRAIG, Cathryn Coe. The relationships between self-concept, body weight, and sociometric status. M.A. in Physical Education, 1970. 170 p. (C. Sherrill)
Data on body weight, sociometric status, and self-concept were collected from 301 freshman and sophomore college women enrolled in the required physical education program. Relationships between self-concept, as measured by the Tennessee Self-Concept Scale, sociometric status, and 5 classifications of body weight (obese, stocky, average, slender, and underweight) were determined. A significant relationship was found to exist between body weight and sociometric status.

565. DELAUNE, Kathryn M. A job analysis at the leadership level of organized municipal recreation departments within the State of Texas. M.A. in Recreation Administration, 1970. 105 p. (B. E. Lyle, Jr.)
Respondents (N = 171), including administrators, supervisors, and leaders in 15 selected cities having populations of 15,000 or over, completed job analysis questionnaires relating to competencies and responsibilities of full-time recreation leaders of organized municipal recreation departments within Texas. Items under each category were rated according to the criteria frequency and/or importance. Percent of total working time spent in 3 areas--administrative and supervisory, clerical, and human relations--were approximated. Total scores were transmitted into decile ratings. All levels of organization rated "Working with groups" one of the most important competencies. Team sports, swimming, papercraft, painting, creative dramatics, special services for older adults, and art and hobby shows occurred most frequently and were considered most important. Athletic fields were rated the most important facility. Recommendations for competencies for undergraduate professional preparation of recreation leaders were: ability and desire to work with people; to recruit and direct volunteers; to plan and conduct programs of varied activities; to acquire adequate knowledge of skills in major sports, crafts, fine arts, and performing arts; to obtain adequate knowledge of operating recreational facilities; and to carry out administrative and supervisory functions.

566. DOUSSETT, Margaret. A recommended recreation program for Girls' Town, state training school for girls, Tecumseh, Oklahoma. M.A. in Recreation Administration, 1970. 161 p. (B. Myers)
The girls are committed to the school by a court order and range in age from 12 through 17 years. An average estimate of the number of girls in residence at the institution at any given time is 125. Sources of data included 15 professional staff members, 27 housemothers, and 123 students. The opinionnaire technique was used to establish the felt and expressed recreational needs and interests of the students and the philosophical orientation of the professional staff and housemothers regarding recreation at Girls' Town. On the basis of the data and within the framework of recreation program planning principles, as well as 4 1/2 years of professional experience at the institution, the investigator made 56 recommendations for the development of the recreation program at Girls' Town.

567. EVERETT, Mary. The modification of attitudes as a result of a self-directed method and a traditional method of precamp training for camp counselors. M.A. in Recreation Administration, 1970. 152 p. (B. Myers)
The study was undertaken to examine the effects that a self-directed method and a traditional method of precamp training had on the modification of counselors' attitudes toward children, toward self and others, toward the supervisor, and toward authoritarianism. Ss included 17 camp counselors employed at Girl Scout Camp Rocky Point, Denison, Texas, and 19 camp counselors employed at Girl Scout Camp Timberlake, Azle, Texas, during the summer of 1969. Instruments selected for measuring attitudes were: Minnesota Teacher Attitude Inventory, the Attitude Toward Self and Others Inventory, the Attitude Toward Supervisor Inventory, and the California F Scale. Initial administration of the 4 selected instruments occurred within the first 2 days of the precamp training session and final administration of each instrument was completed within the first 3 days of the 8th wk. of the camping season. ANOVA, t tests, and correlations revealed that a self-directed method of precamp training for camp counselors was not more effective than the traditional method in the modification of their attitudes toward children, toward self and others, and toward authoritarianism. A negative modification of the attitude toward the supervisor was evidenced by counselors subjected to the traditional method of precamp training. Counselors trained under this method showed evidence of a significant relationship between their attitude toward self and others and their attitude toward the supervisor.

568. GREEN, Ruth E. A study of the stability for two extreme perceptual types, the visual and the haptic, in relation to learning dance movements. Ph.D. in Dance and Related Arts, 1970. 322 p. (J. Rosentswieg)
Two extreme perceptual types, the visual and the haptic, were identified and Ss of each type were measured to see if the mode of perception would remain stable when learning dance movements taught with distinct methods emphasizing similar and different perceptual modalities. Undergraduate students (N = 61) were used as final Ss. A battery of 3 tests selected from the literature and modified for the investigation was used to measure perceptual discrimination. Three distinct teaching methods, the visual, the visual-haptic, and the haptic were used. Subjects were retested and re-

evaluated at the conclusion of the experimental teaching period. ANOVA indicated that extreme perceptual types remain stable although exposed to distinctly different teaching methods.

569. HERNDON, Daisy E. The relationship of perceptual motor ability and intellectual ability in kindergarten-age children. M.A. in Physical Education, 1970. 64 p. (J. Rosentswieg)

The Pearman Modification of the Lincoln Revision of the Oseretsky Motor Development Scale and the Singer-Brunk Figure Reproduction Test as modified by Herndon, and the Kulmann-Anderson Measure of Academic Potential were given to 50 kindergarten children. Correlations indicated that the perceptual tests correlated highly ($\underline{r} = .89$) and that the modified Singer-Brunk Figure Reproduction Test appears preferential in relating perceptual ability to intelligence at the public school level. The relationship between intelligence and perceptual ability of kindergarten-age children was significant ($P < .01$).

570. LeBATO, Loretta T. An electromyographic study of the effect of participation in three selected gross motor activities on residual neuromuscular tension. Ph.D. in Physical Education, 1970. 128 p. (J. Rosentswieg)

Quantitative electromyographic measurements of residual neuromuscular tension of the biceps brachii and rectus femoris muscles of 60 college women were taken before, during, and after a 9-wk. participation in selected recreational types of activities (bowling, swimming, and modern dance), classified as a light, moderate, and heavy level activity. A nonparticipating, or control group, was also formed. Residual tension was measured with an Integrating Bioelectric Monitor coupled with an electronic counter approximately 1 hr. after participation in activity, repeated 6 hr. later, and after 24 hr. during the initial and final testing periods, and approximately 1 hr. after participation during the mid-point test. It was concluded that participation in recreational activities for 9 wk. does not significantly lower residual neuromuscular tension beyond a short, transitory period.

571. LONDON, Anita R. The status of therapeutic recreation in hospitals and institutions in the State of Texas. M.A. in Therapeutic Recreation, 1970. 98 p. (G. A. Hayes)

A study of the size, auspices, and function of 179 hospitals and institutions with therapeutic recreation programs revealed the following information: as the size of the hospitals and institutions increased, so did the probability of the existence of a therapeutic recreation program; hospitals and institutions operated under the auspices of the federal and state governments more frequently had therapeutic recreation programs than county-municipal, voluntary, or proprietary facilities; hospitals and institutions for the mentally ill, tubercular, and mentally retarded were more likely to have therapeutic recreation programs than facilities serving other functional categories. Forty-six % of the 130 respondents indicated they had a therapeutic recreation program.

572. LYNCH, Patricia L. An analysis of the socioeconomic levels and ethnic backgrounds with respect to health behavior of seventh-grade girls in Del Rio, Texas. M.A. in Health Education, 1970. 81 p. (F. Hostetler)

The Colebank Health Behavior Inventory was administered to 244 7th grade girls in 2 selected school districts in Del Rio, Texas, to measure their health behavior with respect to socioeconomic levels and their ethnic backgrounds. Raw scores were subjected to ANOVA to determine whether a significant difference existed between the socioeconomic levels, the ethnic groups, and the 2 districts. Duncan's Multiple Range Test revealed significant differences between girls of different socioeconomic levels and ethnic group with regard to health behavior.

573. MARTIN, Vicki. An historical study of six selected ethnological dances from the Pacific Islands of Samoa and Hawaii. M.A. in Dance and Related Arts, 1970. 136 p. (A. S. Duggan)
The dances were described with respect to reciprocal relationships based upon such background material as social structure, religion, history, and geography. The 2 Samoan dances described are Lapalapa, which is performed by both sexes, and the Samoan Sword Dance, which is performed by men only. The 4 Hawaiian dances reflect a cross section of music and characteristic themes of the Hawaiian culture. Ka Pi A Pa is a rhythmic device for teaching the Hawaiian alphabet, comprised of 12 letters; Pupu Hinuhinu is a lullaby; Ula No Weo is a dance accompanied by a traditional chant extolling the beauties of Cape Nohili; and Beyond the Reef is a dance accompanied by a modern Hawaiian song in English. Each of the dances was described with respect to the number of dancers, structure, formation, basic movement motifs, accompaniment, costumes, and special occasions on which the dances have been and are now performed.

574. MIZE, Nancy J. Conditioning of heart rate under exercise stress. M.A. in Physical Education, 1970. 80 p. (J. Rosentswieg)
Thirty college women were divided into 2 groups to determine if heart rate could be instrumentally conditioned and controlled during exercise stress on the bicycle ergometer. Experimental Ss received conditioning with immediate visual and verbal feedback and reinforcement of the conditioned response. The number of experimental sessions was dependent upon the S's rate of learning for maximum of 12 days. The criterion for learning in this study required S to lower her heart rate significantly 3 of the 4 trials presented each day, for 2 consecutive days, while in the resting position. Upon learning, each experimental S and a randomly selected control S were given the $SWC_{150}$ test to determine if control could be exhibited under exercise stress. ANOVA showed that instrumental conditioning during the resting state appears to facilitate heart rate lowering in the exercise stress situation measured, but not to a statistically significant degree. This trend was apparent and data were significant at low intensities of exercise for Ss who met the criterion measure of learning.

575. NITSCH, Mary Jo. An evaluation of two methods of curl-ups in the development of abdominal strength, low back strength, and the loss of adipose tissue. M.A. in Physical Education, 1970. 93 p. (B. E. Lyle, Jr.)
SHS girls were assigned to 3 groups (N = 30). Ss in experimental Group I performed the bent knee curl-up; Ss in experimental Group II performed the half curl-up with bent knees; Ss in the control group refrained from any specific abdominal exercise. Cable tensiometer tests of trunk flexion and trunk extension strength, curl-ups, waist girth, height, weight, and age were assessed before and after the 10-wk. period. ANOVA, the Duncan's Multiple Range technique, and *t*-tests, indicated significant differences

in abdominal strength as measured by the unlimited curl-up test and the trunk flexion test for Groups I and II. Low back strength was developed to a significant degree by experimental Group I as measured by the trunk extension test. No significant difference was obtained in waist girth measurements.

576. ROBERTSON, Sylvia J. Dynamic strength of the forearm flexors measured by the Hill inertia wheel and its relation to upper arm girth. M.A. in Physical Education, 1970. 57 p. (R. V. Ganslen)
A Hill Inertia Wheel was constructed locally and fitted with a microswitch which led to a brush recorder to record the velocity of the wheel with great precision. The maximum biceps girth of 100 women was measured with an anthropometeric tape, after which S propelled the inertia wheel at 3 different torque loads (Newton's). A piece of aircraft cable fitted with a handle was hooked around the wheel in order to apply the flexor muscle force. The test reliability was high at all torque loads; however rs between muscle girth and force developed was low (.37 to .43). The low positive correlation between biceps girth may be influenced by the fat, bone, and non-flexor muscles measured using anthropometric techniques.

577. ROGERS, Ruth M. The relationship between selected anthropometric and roentgenographic measurements of the calf muscles, foot and leg, stature, body weight and strength and movement time of the ankle extensors. Ph.D. in Physical Education, 1970. 154 p. (R. V. Ganslen)
Authors have alleged that the relative length of the heel and foreleg is an important determinant in the efficiency of the ankle and foreleg for propulsive power. The relationship between selected measurements of the calf muscle, foot, and leg, as well as stature, weight, and biomechanical factors of strength and movement time of the ankle extensors was determined for 100 college women. Anthropometric techniques and X-rays of the foot and calf muscle were used to assess the bone or muscular dimensions of interest. A special ankle extension movement timer was developed. Body weight was found to be highly correlated with calf muscle development, while correlations with the bone measurements of the foot exhibited very little relationship. Ankle extension time was not significantly related to bone dimensions of the foot or calf muscle development.

578. SHERRER, Betty B. Guidelines for the organization and administration of competitive girl's drill teams in the State of California. M.A. in Physical Education, 174 p. (J. Rosentswieg)
Successful drill team advisors (N = 44) completed a questionnaire concerned with the practices followed in the development and administration of competitive drill teams. Related literature, the results of the questionnaire, and personal experience provided the data for the guidelines formulated. Successful drill teams tended to follow similar practices.

579. TAYLOR, Z. Ann. A study of health-related beliefs based upon doctrines of selected Protestant, Catholic, and Jewish religions in the United States. Ph.D. in Health Education, 1970. 325 p. (F. Hostetler)
Four general health-related areas which were considered were foods and beverages; tobacco, alcohol, and drugs; medical and surgical care; and family living. Media for the study included related literature, replies to questionnaires sent to religious headquarters throughout the U.S., and

personal interviews in the Greater Dallas-Denton-Fort Worth area. A select group of the Christian religions and Reformed Judaism was included. It was noted that educators need to include in their curricula courses which offer the potential teacher an opportunity to learn health-related topics; content of HE courses in college and university curricula should be examined closely to determine if the beliefs and attitudes of the different religions as they relate to health practices are included.

580. WEDAMAN, Julia C. Effect of a circuit training program in badminton skill of freshman college women. M.A. in Physical Education, 1970. 111 p. (Virginia Hicks)
Two badminton skill tests were administered to 1 group of 20 freshman college women preceding and after 14 wk. of instruction in a badminton activity class and 1 group of 26 freshman college women preceding and after a progressive circuit training program in conjunction with a 14-wk. badminton activity class. The data indicated that a progressive circuit training program preceding a badminton class did not yield a significant positive influence upon the playing ability of those students enrolled in the class as compared with the playing ability of those students enrolled in a badminton class which was not preceded by a progressive circuit training program.

**University of Washington, Seattle, Washington** (M. R. Broer)

581. CLARK, Jane E. The effect of a progressive increase in implement length on the learning of the tennis forehand and backhand drives. M.S. in Physical Education, 1970. 81 p. (K. Fox)
College female Ss were enrolled in 4 beginning tennis classes. Two classes received instruction with striking implements of varying lengths, while 2 classes received similar instruction but used the full-length racquet throughout the instructional unit. Two instructors were assigned to 1 of each of the 2 instructional techniques. Grip strength was measured at the beginning, middle, and end of the instructional unit. In the last class period, a knowledge examination and an evaluation questionnaire were administered. Skill was measured by the Broer-Miller Test and the Ball-Boy modification of this test. The use of a progressive increase in implement length did not result in acquisition of a greater drive skill. The same level of performance was developed using the full-length racquet approximately one-half the time as was shown by the class using the full-length racquet throughout. Further, knowledge was not affected by the instructional technique. Grip strength improved over the instructional unit.

582. FORD, April L. The reliability and validity of the Ohio State University cardiovascular fitness test for college women. M.S. in Physical Education. 1970. 109 p. (R. G. Early)
The purpose of this study was to determine the reliability and validity of the Ohio State University Cardiovascular Fitness Test as a submaximal stress test to predict maximal cardiovascular endurance of college women, and to determine whether use of a lower bench height and increased end-point heart rate from that employed in the Ohio State Test would result in a more valid prediction of cardiovascular endurance of college women. Women students (N = 18), aged 18-23, were administered the Ohio State

Test, the modified form of the Ohio State Test, and the Bruce Multistage Capacity Test, an exhaustive treadmill exercise. Relationships were determined between the 2 forms of the step test, and between performance on the step tests and selected variables on the Bruce Test. Results showed that the 2 forms of the step test were highly reproducible. The r between performance on the step tests and the times to exhaustion and to maximal oxygen consumption on the Bruce Test were not significant, and increasing the end-point heart rate and lowering the bench height did not affect the tests' predictive ability. A high r was found between performance on the step tests and the time required to reach a heart rate of 180 on the Bruce Test.

583. GARY, Patricia Ellen. The influence of body weight and height upon the relationship of strength to performance of the bent-arm hang and modified pull-up tests. M.S. in Physical Education, 1970. 72 p. (M. R. Broer)

Ss were 30 women, aged 18 to 22, tested on the following variables: bent-arm hang; modified pull-up; height; weight; ponderal index; cable tension tests of elbow flexion, elbow extension, shoulder flexion, and shoulder extension strength; hand dynamometer tests of grip strength; total isometric strength (sum of cable tension and grip strength T-scores) and the pull test (a highly reliable test of isotonic pulling strength which does not require the subject to lift her own body weight). Zero-order and partial correlations among the variables revealed that weight is a negative factor in the relationship of strength to performance of the bent-arm hang; and height, and to a lesser extent weight, are negative factors in the relationship of strength to performance of the modified pull-up. The pull test is not related to the bent-arm hang or the modified pull-up, and is more related to arm and shoulder girdle strength and less affected by body height and weight than either of the other two performance tests. Grip strength scores taken with the hand in the mid-position may not be appropriate for comparison with tests which require the arms to continuously support or move the weight of the body with the hands in a pronated position. Finally, the ponderal index is not a factor in the performance of the bent-arm hang and the modified pull-up tests.

584. HUSTED, Virginia Merle. The effect of a voluntary program of resistance exercises and jogging on the modification of strength, endurance, and subcutaneous fat of women. M.S. in Physical Education, 1971. 98 p. (M. R. Broer)

Women students, faculty or staff (N = 48) volunteered to jog and perform 8 resistance exercises for 15 30-min. sessions during 5 weeks. Ss (N = 22) enrolled in 2 archery classes during the same period were used as a control. All Ss were pre- and post-tested to determine whether changes occurred in arm and shoulder strength, leg strength, endurance, and subcutaneous fat. Maximal lift in 1 trial for the leg press on the Universal Gym was used to test leg strength; a push-pull dynamometer and the bench press on the Universal Gym to test arm and shoulder strength; Lange Calipers to measure fat at subscapular, suprailiac, and triceps sites; and endurance was measured by Skubic-Hodgkins' Cardiovascular Efficiency Test. Significant improvement was found for the experimental Ss' arm and shoulder (bench press) and leg strength, endurance, and fat loss at the subscapular and suprailiac sites, and these improvements were significantly greater than those of the control group. Although the experimental group improved more than the archery group in leg strength, that group's improvement was significant. The control (archery) group also improved significantly in push and pull strength but these differences between groups were not significant.

585. MOE, Donna Adeline. The personality factors of university women participating in creative dance, speed swimming, or synchronized swimming. M.S., 1971. 116 p. (B. J. Purdy)

Ss completed a Personal Information Questionnaire and the 16 P-F questionnaire, Form A and Form B. Of the 14 traits found significantly different between the 3 groups, 7 differences were between the dancers and the synchronized swimmers. It was concluded that differences in personality factors exist among participants in creative dance, speed swimming, or synchronized swimming. Speed swimmers and synchronized swimmers are very similar in terms of personality. Creative dancers differ from speed and synchronized swimmers in some personality factors.

586. PINKERTON, Barbara Jeanne. Analysis of foot preference as indicated by selected tests: First grade boys and girls. M.S. in Physical Education, 1970. 82 p. (M. R. Broer)

Ss were 50 first grade boys and girls. Nine foot preference tests were selected; 4 trials were given for each foot for the Turner Pushing, Fusek Pushing, and Bass Stick Balance Tests, and 5 trials for the hop, long jump, jump for height, turn and kick, kick for goal, and step up. Preference for each test was determined, and the number and percent of Ss indicating preference for each task was obtained. Each task was compared with every other task, and then tasks were grouped according to purpose (support, power and force, manipulation, and lifted leg). It was concluded that 2 trials of the kicking tasks, 4 trials of the timed tests, and 5 trials of the other tests are needed to indicate a preference; an index scoring system based on total time for all trials is the best means of determining preference for the timed tests; children choose the same foot for kicking tasks; there is some tendency for preference for a manipulative leg, take-off leg, and a lifted leg; the foot chosen for sustained balance is not necessarily the same foot chosen for momentary balance; the need for supporting the body weight appears to have little influence on choice of foot for various tasks; first grade girls tend to choose their manipulative foot for stepping up and their power foot for pushing themselves up onto a step; and preference for foot usage appears to be as specific to task for most first grade children as for college women.

587. POPE, Beverly Joan. Validity of a written instrument to assess swimming ability of college women. M.S. in Physical Education, 1970. 86 p. (R. M. Wilson)

The Questest is composed of a questionnaire requesting information about past swimming experience, a self-estimate of swimming ability, and a short examination concerning swimming techniques. Data from 318 Ss indicated that of the 3 sections of the Questest, the self-estimate is the best single evaluative measure, especially for the nonswimmer and advanced swimmer groups. For purposes of determining pass-fail only, assessment of past experience was adequate for the nonswimmer and advanced swimmer groups, while assessment of self-estimate was valid for all groups (elementary and intermediate level Ss as well). A combined assessment on the basis of past experience and self-estimate was not as valid as self-estimate alone. Although the various groups' means for the examination questions were significantly different, the questions misclassified many Ss' swimming ability. American Red Cross and comparable evidence of swimming ability above the intermediate level is an excellent measure for a passing classification. The Questest self-estimate, when administered as a section of the entire instrument and when students know that the actual performance of some will be checked in the water, can be used as a device for assessing swimming ability.

588. ROBARE, Judy M. Effects of a unit in trampoline instruction on selected elements of physical fitness of high school girls. M.S. in Physical Education, 1970. 71 p. (M. R. Broer)

Ss were pre- and post-tested on the Bass Balance tests, bent-arm hang, bent-leg curl-ups, Illinois Agility Run, Skubic and Hodgkins step test, toe touch, and wall-sit test. The control group (N =30) received archery instruction 3 days/wk. for 6 wk., while the experimental group (N = 30) received daily trampoline instruction. At first, the experimental group had greater balance, abdominal strength, and leg strength, while the control group had a higher level of endurance; and at the end of the study, the experimental group was superior in abdominal and leg strength. The experimental group improved significantly in all of the selected elements of physical fitness, and the control group in balance, agility, endurance, and leg strength. The trampoline group, however, had improved significantly more than the archery group in arm and shoulder strength, agility, endurance, flexibility, and leg strength. Participation in outside activities and attendance had little effect on the differences between the groups.

589. RUZICKA, Patricia A. The development of a movement perception test. M.S. in Physical Education, 1970. 100 p. (M. R. Broer)

The purpose was to develop a film which would test ability to perceive the changing orientation of objects moving in space. The film was composed of 4 phases, each of which included 27 film clips of an object (softball, volleyball, tennis ball, or badminton shuttlecock) being projected 3 times into each of 9 target areas surrounding a camera in the position of a receiver in a game situation. The order of the film clips was randomized and 3 practice clips preceded those used for scoring. Women Ss (N =44) viewed the film and were scored on the accuracy of their judgments about where each of the objects would land; the time taken to make each decision was also measured. Using the split-halves method, the film was found to be a reliable test of the perception of an object's flight through space. Intercorrelations of accuracy scores for the 4 phases and the total test revealed low relationships among phases but marked relationships for each phase with the total; reaction times were consistent among phases, and differences apparently were not related to different kinds of projectiles. Partial correlations indicated that all phases contributed equally to the total accuracy and time scores, but when the 2 factors were combined, the volleyball phase was found to make the least contribution.

590. SWINFORD, Josephine Olive. The effect of utilizing a videotape recorder on the learning of a motor skill. M.S. in Physical Education, 1970. 83 p. (B. J. Purdy)

Data were obtained from 99 sophomore SHS girls enrolled in 4 PE classes divided into 3 groups: the control group, the physical practice group, and the videotape practice group. After 2 days of instruction, Ss were tested on the overhead serve. Ten practice sessions followed, wherein the control group experienced no practice of the serve, the physical practice group practiced the serve for 10 trials each day, and the video-tape practice group practiced the serve 10 times each day and viewed 5 of these serves on video tape the following day for 7 of the practice sessions. ANCOVA revealed that there was no treatment effect. Although 10 practice sessions of 10 serves each with physical practice and physical practice plus observation of self and others' performance does result in improved performance of the overhead volleyball serve, such improvement is not great enough to indicate that a higher level of performance is attained than that achieved with no practice of the serve at all.

591. VAIL, Dana S. Self-concept, body image, and the learning and retention of novel motor skills. M.S. in Physical Education, 1970. 63 p. (B. J. Purdy)

Ss for the study of self-concept test reliability and photographic evaluation reliability and objectivity were 35 college freshman women, 27 of whom participated in the remainder of the study. Five measuring instruments were utilized for collecting data: the Self-Concept Scale, the Revised Body Image Objective Rating Scale, frontal and lateral view photographs, and 2 novel skill tasks, the Ball Toss and the Hop and Placement Test. The Self-Concept Scale was found to be reliable for group comparison. The method for evaluating the photographs proved to be reliable and fairly objective. It was concluded that there is no relationship between self-concept and accuracy of body image; there is little relationship between self-concept and level of performance on novel skill tasks; there is little relationship between accuracy of body image and level of performance on novel skill tasks; there is little relationship between accuracy of body image and retention of novel skill tasks.

## **Western Illinois University, Macomb, Illinois** (G. W. Hermann)

592. AZUMA, Paul N. The effect of persistence on gymnastic performance. M.S. in Education, 1970. 33 p. (G. M. Brady)

The degrees of persistence possessed by members of the 1969-70 varsity gymnastics team at Western Illinois University were compared to determine if a relationship existed between persistence and performance levels. Data were collected by means of the Gedney Test, Thematic Apperception Test, and Wang's Questionnaire. None of the testing devices used produced a significantly high correlation with improvement in performance and persistence.

593. BERGMAN, Sarah A. The effect of selected exercises on the longitudinal arch in third grade children. M.S. in Education, 1970. 32 p. (J. A. Robertson)

Third grade students ($N = 91$) were measured by the Clarke footprint angle and then randomly assigned to an experimental or control group. Following 32 days of exercises by the experimental group, a retest was given to all students. The mean differences, for both right and left foot between the 2 groups, were not statistically significant ($P > .05$).

594. BISHOP, Patrick J. The effects of placebo medication and team competition as motivating agents on the work performance of varsity athletes. M.S. in Education, 1970. 56 p. (G. W. Hermann)

Thirty-four male, college varsity athletes, randomly divided into 3 groups, performed 2 tests on the bicycle ergometer. On the initial test no motivation was provided, while on the final test a control group exercised without motivation and the other groups exercised with the aid of placebo medication and team competition. Ss were required to pedal the bicycle ergometer against an applied load of 3.5 kilopounds for 85 wheel revolutions. Three sets of heart rates were monitored during each test and S's score was the length of time in sec. to complete the exercise. Each group improved in performance from initial to final test. ANOVA revealed no significant difference ($P > .05$) in the mean performance time of the 3 groups on the final test. ANCOVA indicated that improvement in mean performance time from initial to final test was not significant ($P > .05$). The increment in mean heart rate from the resting conditions to the presentation of test instructions was not significant and the induced motivators had no significant effect on mean exercise heart rate ($P > .05$).

595. BOYCE, Marie L. The effect of audio stress on gymnasts as measured by the eosinophil count. M.S. in Education, 1970. 34 p. (B. E. Jensen)

Volunteer college women ($N = 17$) from beginning gymnastic major classes were randomly divided into 2 groups. Ss were required to learn a beginning balance beam routine and were tested with and without the experimental variable, spectator noise, during 2 testing periods. A blood sample was taken from Ss after each of the 2 testing periods and a base count was established 1 wk. prior to the first testing period. A gains analysis of the eosinophil values for the experimental and control variables indicated no significant difference ($P > .01$).

596. DETRICK, Judith A. The relationship between strength and social status in ninth and eleventh grade girls. M.S. in Education, 1970. 43 p. (B. E. Jensen)

Ninth grade ($N = 95$) and eleventh grade ($N = 58$) girls were tested to determine the relationship of strength measurements with social status ratings. Also tested was the significance of difference between the 2 obtained $r$'s. A cable tensiometer was used to obtain strength measurements for 3 specific muscle groups: elbow flexion, trunk flexion, and hip flexion. The Cowell Personal Distance Ballot was used to measure individual social status. The Spearman rho correlation coefficients for the 8 rank order classifications were all statistically significant in a negative direction ($P < .05$). Juniors had higher negative $r$'s on all 4 relationship comparisons than did the freshmen. For the Fisher $Z$ tests of differences between freshman and junior $r$'s, the differences between the $r$'s of social status and hip flexion strength and social status and elbow flexion strength were statistically significant ($P < .05$). The differences between freshman and junior $r$'s of social status and trunk flexion and social status and average strength were not statistically significant ($P > .05$).

597. ERNST, Robert D. A study of the relationship between skinfold thickness and cardiovascular performance. M.S. in Education, 1970. 17 p. (D. F. Mapes)

Ss were 50 male Caucasian college students participating in a conditioning class. The short form of the Harvard Step Test was used to determine cardiovascular fitness. The technique used to convert 3 skinfold measures into specific gravity was the multiple regression equation developed by Brozek and Keys. A low negative relationship existed between total body fat and cardiovascular fitness. There was no definite dropping off point concerning this relationship.

598. GRAHAM, Virginia. A study to determine advisers' adherence to and feelings of relevancy toward selected bylaws of the Illinois girls' athletic association. M.S. in Education, 1970. 54 p. (B. E. Jensen)
Ss were Girls' Athletic Association advisers in 12 large SHSs and 8 small SHSs in District 12 of Illinois. Through a personal interview the advisers indicated their responses as to their adherence to the stated bylaws, their feelings of relevancy toward the bylaws, and their feelings toward the general policies of intramurals. Chi squares computed for the total responses by all of the advisers indicated the difference between small and large SHS advisers' adherence to the rules was significant ($P < .05$), and the advisers' feelings of relevancy toward the rules were significant ($P < .01$). There was no significant difference ($P > .05$) between large and small SHS advisers' responses concerning the general policies of the intramural program. Chi squares computed for the total frequencies of all the advisers' responses to determine if a significant difference existed between the responses for each question indicated that most advisers adhered to the rules and favored the "yes" responses for the question of relevancy of rules ($P < .05$).

599. JOHNSON, Donald W. An anthropometric study of Negro and Caucasian boys ages nine and ten. M.S. in Education, 1970. 60 p. (G. W. Hermann and D. F. Mapes)
Anthropometric measurements were taken on 30 Negro and 30 Caucasian boys ages 9 and 10. Statistically nonsignificant differences ($P > .05$) comparing measurements taken on the 2 groups were: stature, sitting height, weight, arm length, upper arm length, forearm length, hand length, leg length, upper leg length, tibial length, sphyrion height, knee width (nondominant), wrist width (nondominant), elbow width, chest width, and fat-free body weight. Statistically significant differences ($P < .05$) found were that Negroes exceeded Caucasians in foot width and length. Caucasians exceeded the Negroes in shoulder width, chest depth, and hip width. The physical differences found by previous researchers on older age groups were generally found in the prepuberty age group.

600. LYONS, Richard A. Blood volume changes in the human forearm following applications of hot water and cold water. M.S. in Education, 1970. 26 p. (D. F. Mapes)
Blood flow volume in the human forearm after applications of cold water on 1 day and applications of hot water on another day was recorded at 15, 30, 45 and 60 min. after each of the 2 treatments. Mean blood flow volume at each of the posttreatment measurements was higher for the hot water treatment than for the cold water treatment. The obtained Fs for the comparison of the cold and hot water treatments and for the comparisons between the two types of treatment and the 4 measurements were significant ($P < .01$). The obtained F for the comparison among the 4 measurements of the blood flows taken for the 2 treatments was not statistically significant ($P > .01$).

601. QUICK, David W. The effect of mental practice on the learning of a motor skill at three different grade levels of previous experience. M.S. in Education, 1970. 29 p. (G. W. Hermann)

Boys (N = 72) from grades 8, 10, and 12 were chosen, 24 from each grade level, and Ss in each grade level were divided into 2 treatment groups, a physical practice group and a mental practice group. All Ss attempted 60 free throws in a pretest, 20 shots each day for 3 days. The practice sessions either physical or mental, occurred each day for 15 consecutive school days, followed by a posttest identical to the pretest. A treatment by levels design was used to determine treatment effects, grade level effects, and interactive effects of treatments and grade levels. Each of the F values for the 3-part analysis was nonsignificant (P> .05).

602. RUNKLE, Dan. A study comparing the physical performance of overweight athletes to that of overweight and obese athletes. M.S. in Education, 1970. 36 p. (V. F. Lowell)

Ss were 20 athletes from a SHS's varsity, sophomore, and freshman football teams. At the end of the season, after 10 wk. of football conditioning, Ss were tested for overweight and for obesity. After using the Height-Age-Body Frame Chart, the tricep skinfold technique for determining obesity, and the Von Dobeln method of measuring body fat, 10 Ss were assigned to each of the 2 groups, the overweight group and the overweight and obese group. During the week following the conclusion of the conditioning program, both groups were put through various physical performance tests. The findings revealed no significant difference in the mean scores (P >.05) between the 2 groups for pull-ups, shuttle run, 50-yd. dash, softball throw, 600-yd. run-walk, and the Harvard Step Test. A significant difference (P <.05) was found in favor of the overweight group for sit-ups and the standing broad jump.

603. STEVENS, Frank L. A survey of problems, policies and procedures of recruiting football players at the small college level. M.S. in Education, 1970. 85 p. (W. M. Hughes)

Sources of data were the small colleges of a Midwestern 7-state area which participated in intercollegiate football and did not exceed an enrollment of 3,000. A questionnaire was mailed to the athletic director at each institution and those returned were analyzed through chi square and by percentage comparisons. There was no significant correlation between the number of freshman or junior varsity football games played and winning. There was little emphasis recorded for the recruitment of junior college football players, while athletes were recruited with considerable emphasis to compete in more than one varsity sport. A majority of the responses indicated that athletic eligibility requirements were more stringent than either NCAA or NAIA standards. With financial aids separated into categories based on athletic ability, academic ability, and need, grants and scholarships awarded to athletes were largely received by football players.

604. STINSON, Larry E. A study of the effects of weight maintenance on selected neuromuscular and cardiovascular responses of collegiate wrestlers. M.S. in Education, 1970. 20 p. (M. H. McIntyre)

Ss (N = 12) were varsity collegiate wrestlers who were assigned to Group A, which lost 4 to 7 lbs., or Group B, which lost 1 1/2 lbs. or less. Data collected included the pretest and posttest measurements of reaction time, resting blood pressure, resting heart rate, recovery blood pressure, and recovery heart rate. Measurements were taken before exercise and then, after completing 2 min. of the Harvard Step Test and a 1-min. rest, the measurements were taken again. Weight was then lost over a 5-day period and a posttest was administered, measuring the same responses. A urinalysis and hematocrit were performed as a part of the pre- and posttest measurements to determine the amount of dehydration. Systolic blood pressure after exercise of Group A and the difference between the total weight loss of Groups A and B was statistically significant ($P < .05$). There was no statistically significant difference ($P > .05$) in heart rate before and after weight loss, systolic blood pressure before weight loss, diastolic blood pressure before and after weight loss, and reaction time before and after weight loss.

605. STRAUCH, Terry F. A study to determine an index for the strength of forearm flexion. M.S. in Education, 1970. 26 p. (R. H. Gedney and D. F. Mapes)

Relationships were studied involving static and dynamic measures of strength taken at the weakest position in flexion of the forearm and the maximum weight that can be moved during a complete forearm curl using a barbell. Ss (N = 35) were male college students who were administered 3 tests including the cable tension test at the $30^{\circ}$ position of forearm flexion, the Super Mini Gym test at the $30^{\circ}$ position of forearm flexion, and the amount of weight that could be curled by the forearms. The relationship between the Super Mini Gym recording at the $30^{\circ}$ position of forearm flexion and the maximum barbell curl was $r = .70$. The relationship between the cable tension test and the maximum barbell curl was $r = .49$.

606. STRICKLAND, Gary W. A comparison of the effects of two methods of progressive resistive exercise on the rehabilitation of the knee. M.S. in Education, 1970. 27 p. (R. E. LaRue and J. E. Powell)

All Ss (N = 10) were referred to the Physical Therapy Department by a physician in the health service of Western Illinois University. The group using the DeLorme system consisted of 6 males and the group using the pre-Delorme system included 4 males. Data collected included the initial measurements of atrophy, strength of quadriceps and hamstring muscle groups, and endurance. Measurements were taken again at the end of the 2nd, 4th, and 6th wk. of exercise. Data for the pre-Delorme and DeLorme groups were arranged in a treatment-by-levels statistical design and an F ratio was found. The calculated F was not statistically significant ($P > .05$) between the treatment groups for any of the items measured. There was no significance found at the levels of the 2nd, 4th, and 6th wk. No statistical difference ($P > .05$) existed with the treatment-by-levels design.

607. TRACY, Phillip M. A comparison of the effects of triethanolamine salicylate iontophoresis and hydrotherapy techniques for the treatment of moderate ankle sprains. M.S. in Education, 1970. 24 p. (G. W. Hermann and R. E. LaRue)

The iontophoretic group consisted of 6 males and 1 female, while the hydrotherapy Ss included 5 males and 2 females. Data collected for both groups included the initial, pretreatment and posttreatment pain free range of motion of the involved ankle. The mean rate of recovery for those Ss who received triethanolamine salicylate iontophoresis was significantly greater than the mean recovery rate for the Ss treated with ice immersion and contrast bath ($P < .01$).

608. WADDELL, Phillip E. Policies in selected universities relative to academic eligibility and intercollegiate athletics. M.S. in Education, 1970. 74 p. (G. M. Brady)

Athletic eligibility procedures in colleges and universities within the U.S. ($N = 116$) were surveyed in order to examine procedures used in computing credits from other institutions, repeating "F" courses, and grade point averages for athletic eligibility. Data were collected by means of a questionnaire with 95 being returned for an 81.8%. Utilizing chi square, the procedures and practices found to be statistically significant ($P < .05$) and prevalent throughout the U.S. were: a "C" average was required for transfer students to be admitted, acceptable courses to transfer were evaluated by the registrar, there was no time limit in which a student must repeat a course, and a majority of the institutions did not impose more stringent rules than those of the NCAA. Those procedures that were not statistically significant ($P > .05$) included the areas of: summer school courses from another institution transferring in as "C" work or proficiencies, institutions accepting transfer credit at full value, previous grade point average being used to determine cumulative grade point average at the respective institution, and the computing of hours and credits in determining a student's grade point average in the event he repeated a course.

609. WEBSTER, Susan L. The effect of the straight and angular approach upon velocity of the volleyball spike. M.S. in Education, 1970. 34 p. (B. E. Jensen)

A repeated measures design was used with only 1 highly skilled spiker. The methods of approach were the straight running approach and the angular running approach. Data were collected from 10 trials for each type of approach on 5 different days for a total of 100 trials. Time measures were determined by using the Noise-Operated Relay and the Hunter Klockounter. The velocity for each spike was the ratio of the distance to the time measure. Velocity scores were analyzed by using a 2X5X10 factorial design for randomized blocks arrangement. $F$ tests were computed for the types of approaches, trials, and the interaction of approaches and trials. The $F$ test showed no significant differences ($P > .05$) for the 2 types of approaches or for the trials. There was a significant interaction, however, of trials and types of approaches. The null hypothesis was accepted, as there were no significant differences in the types of approaches.

610. WROBEL, Kathleen. The effect of two methods of instruction on creativity in gymnastics. M.S. in Education, 1970. 35 p. (B. E. Jensen)

The study compared the effects of semi-formal and informal methods of instruction on creativity in floor exercise in 6th grade girls as measured by a creativity scale. Data collected included skill rankings made by the instructor and creativity ratings made by 3 judges from the university faculty. No significant difference in the amount of creativity was found between the informal and semi-formal groups ($P > .05$).

611. WROBEL, Richard. A survey of favorite soccer drills of successful college soccer coaches. M.S. in Education, 1970. 44 p. (H. S. Greer)
Data were collected by means of a questionnaire in which soccer coaches were asked to explain and diagram their favorite drill in each of the areas concerning offense, defense, ball control, conditioning, and goalie. Information was requested concerning each drill relative to the time required in min. per day, the number of times used per week, the space required, and the equipment needed. The drills and their descriptions were presented under the various categories and graphs were used to represent the approximate amount of time spent per week by each coach on his favorite drill in each area.

### **Western Kentucky University, Bowling Green, Kentucky** (W. B. Koch)

612. KNOTT, Jefferson C. The effects of the phenomenon of the psychological refractory period upon college athletes and nonathletes. M.A., 1970. 43 p. (W. B. Koch)
The purposes of this investigation were to compare the simple RTs of the left and right hands of both athlete and nonathlete groups, and to examine the immediate effects of the refractory time of the second hand at paired response intervals 50-500 MS duration on both groups of Ss. Nonathletes ($N = 6$) were randomly selected, while members of the freshman basketball squad ($N = 6$) were selected as the athletic group. Testing consisted of 4 days of simple single hand RT to visual stimuli and 6 days with response to paired stimuli. S reacted by removing hands from telegraph type keys at the appearance of light stimuli. Results indicated that the athletic group was significantly better ($P < .05$) than the nonathletic group in simple LH responses but not in simple RH responses; and that the refractory times at various time intervals were significantly different between athlete and nonathlete groups at any of the time intervals tested.

613. ZAFRA, Amelia J. Study of attitudes of college students toward physical education at Western Kentucky University. M.S. in Physical Education, 1970. 69 p. (W. H. Solley)
The purpose of this study was to analyze attitude responses of Ss toward PE at WKU. Women ($N = 209$) and men ($N = 220$) Ss were selected by random techniques from those enrolled in required PE and were administered an attitude scale composed of the Wear Attitude Scale and items specific to the required PE program. Chi-square tests indicated: a definitely favorable attitude toward PE; no differences in attitude between men and women, in-state and out-of-state students, those with good and poor PE backgrounds, and between freshmen and upperclassmen; a tendency toward, but nonsignificance between positive attitudes and years of PE experience; more negative attitudes and fewer positive attitudes among upperclassmen; more positive attitudes among more active Ss; high positive attitudes toward the required PE program; and a preference for full semester courses in beginning swimming, bowling, conditioning, gymnastics, handball, judo, and trimnastics, and for leaving the remainder of the activities on the present bi-term basis.

**University of Wisconsin, Madison, Wisconsin** (J. G. Wolf)

614. ANDERSON, Cynthia C. A method of data collection and processing for cinematographic analysis of human movement in three dimensions. M.S. in Physical Education, 1970. 85 p. (E. M. Roberts)
An overarm throw was recorded by 3 cameras set at right angles to each other. Centers of gravity of the forearm and upper arm were located on S by circular markers prior to filming. Using an X-Y coordinate plotter for film reading, the centers of gravity of the forearm and upper arm and the position of the elbow joint were defined. A computer was used to process the recorded data with the program resulting in printouts of the coordinate values of the centers of gravity of the forearm and upper arm in 3 dimensions, the lengths of the forearm and upper arm, and the angle between the forearm and the upper arm. Data showed good external and internal consistency, and the computed angular change occurring at the elbow joint showed good agreement with the direct continuous recordings by an electrogoniometer. The method presented was adequate in processing data in 3 dimensions.

615. ATEN, Rosemary. The effects of repeated trials with score information provided or withheld on throwing velocity of high and low performers. Ph.D. in Physical Education, 1970. 120 p. (M. R. Sloan)
The purpose of the investigation was to determine the effects of repeated trials on motor performance for 2 different skill levels under test conditions of score information (SI) provided and withheld. The Softball Throw for Velocity Test was utilized as the motor performance measure. Thirty-four highest and 34 lowest performers were selected from a group of 937 female college freshmen who were administered the above test of 20 trials over 4 days. Ss were randomly assigned to 2 groups for each of the test conditions. Multivariate ANOVA and analyses of trends were used to analyze the data. Quantitative measures were collected with the aid of the velocimeter. The SI group visually observed the time of flight score on the digital counter of the velocimeter, and the investigator verbalized the score immediately following each throw; the no-SI group was not informed of the time of flight following each throw. Results showed that level of performance was unaffected by test conditions of SI provided and SI withheld. High skilled performers formed a different response patterning of trial means than low skilled performers within each testing session.

616. ATHA, John. The discriminatory significance of the isometric force/time curve in voluntary muscular contraction. Ph.D. in Physical Education, 1970. 430 p. (K. G. Stoedefalke)
Two series of instantaneous maximum voluntary isometric force efforts using the elbow flexors and the lower limb extensors were continuously recorded by means of 2 appropriate force-transducers on 50 male, right-handed Ss. Four series of angular displacement curves during voluntary maximum velocity arm flexions were measured under 4 different load conditions by means of an electrogoniometer. Two sets of leg power tests were administered, and the kinetic energy generated during take-off, as well as take-off momentum, were computed. Anthropometric variables of weight, stature, trunk-leg-forearm length were measured. Arm mass was measured by a volumetric technique and forearm inertia calculated.

Isometric force/time relationships were indicative to a moderate extent of the power available for dynamic tasks. The best indicant of the curve was the static force pulse generated during the first 150 to 200 MS of effort. The imposition of isometric conditions alter the actual capacity of the muscle to generate force, and this changed capacity is located locally and not at a central nervous level.

617. ATWATER, Anne Elizabeth. Movement characteristics of the overarm throw: A kinematic analysis of men and women performers. Ph.D. in Physical Education, 1970. 408 p. (E. M. Roberts)
The purpose of this study was to investigate selected spatial and temporal aspects of the overarm softball throw for velocity as measured from side, rear, and overhead view slow-motion films of men and women performers. Five skilled men (velocity = 110-125 ft/sec) were selected from the University of Wisconsin varsity baseball team. Five skilled women (velocity = 70-80 ft/sec) and 5 average women (velocity = 40-50 ft/sec) were selected from among performers who consistently demonstrated throwing velocities within the 2 ranges specified. One objective was to determine when and how rapidly the hand holding the ball acquired the speed it possessed at release. Distinct phases of rapid acceleration and deceleration of the ball in space preceded final acceleration of the ball toward release in the skilled male performers, but were less distinct for the skilled and average women. A second objective was to describe the joint actions and changes in body position associated with the measured displacement and resultant velocity of the ball. Ss with the fastest ball velocity at release were found to be those with the most rapid sequential acceleration and deceleration of trunk and throwing arm segments prior to release.

618. BUDDE, Elaine. The relationship between performance of kindergarten children on selected motor tests and the Metropolitan Readiness Tests-Otis-Lennon Mental Ability Test. Ph.D. in Physical Education, 1970. 120 p. (L. E. Halverson)
The purpose of this study was to investigate the relationship between performance of kindergarten children (N = 107) on 5 motor tests, and their performance on the Metropolitan Readiness Tests and Otis-Lennon Mental Ability Test. The 5 motor tests used in the study were the ball bounce and catch tests and the balance beam test which evolved from similar tests reported in the literature, the disc obstacle test and the wall kick volley which are new tests, and the hurdle jump test. Data were analyzed using ANOVA and test-retest methods of determining reliability of the motor tests, reciprocal average analysis of the motor test items, correlation procedures, ANOVA comparison of mean performance of boys and girls on the tests, and tabulation of the number of children in the low score levels on the tests. The motor tests selected and devised were suitable for the kindergarten age child and the relationship between performance on the criterion measure and performance on the motor tests was low.

619. ERICKSON, Bruce R. History of financial aid to athletes in the Big Ten 1941-1961. M.S. in Physical Education, 1970. 89 p. (J. G. Wolf)
The study attempted to determine why athletes are given financial aid, identify manner and form in which financial aid in the Big Ten Conference has been given, examine the rationale behind the formation of the various policies, explore the actions taken by the conference in regard to viola-

tions of established policies, and examine circumstances or events which brought about any necessary changes. Data were obtained by researching documents in the Big Ten office (Chicago) including minutes of meetings, committee reports, and conference handbooks. Intercollegiate athletics, like any program, are from time to time subject to abuses. The Big Ten conference always took positive and constructive steps to protect intercollegiate athletics. Financial assistance to athletes is entirely proper in the light of established educational policy to assist worthy students in attaining educational goals.

620. GABERT, Trent. An investigation of selected factors related to consistently reproducing a specified velocity and to perception of change in velocity of a self-projected object in three-dimensional space. Ph.D. in Physical Education, 1970. 190 p. (M. R. Sloan)

Twenty male Ss (ages 9-13) were randomly selected and given specific tasks: 15 trials of attempting to reproduce a perceived one-half of maximum velocity of an overarm baseball throw; and 30 trials of trying to perceive change in velocity between 2 throws (each throw was an attempt to approximate the perceived one-half velocity). It was concluded that maturity level with respect to the ability to consistently reproduce a specified velocity and to perceive change in velocity of an overarm throw does not change during the ages 9-13, and these abilities are not influenced by height, weight, or previous experience. The ability to perceive change in velocity seemed to be indirectly influenced by velocity level, and increased as the magnitude of the velocity and time of object flight deviations increased, and when the direction of the velocity deviations was faster and that of the time deviations less.

621. GALE, James B. Skeletal muscle changes in ATP, creatine phosphate, DPNH-Reductase, and phosphorylase in rats trained at 900 and 7600 feet altitude. Ph.D. in Physical Education, 1970. 99 p. (F. J. Nagle)

The adaptation of skeletal muscle to training was examined both biochemically and histochemically in order to discern the specific changes which occur with training. Albino rats were trained at both 900 and 7600 ft. altitude with 2 types of running programs. Rats were either trained by running repeated sprints with rest intervals or running continuously for periods of 30 min. each day. After a 63-day period the rats were sacrificed and skeletal muscles of the hind limbs were examined. Rats which had experienced sprint training increased the levels of creatine phosphate. Altitude exposure caused even greater increases in creatine phosphate levels in sprint-trained rats. The number of fibers high in DPNH-Reductase was increased in endurance-trained rats. Endurance-trained, altitude-exposed rats showed a smaller increase in DPNH-Reductase than those trained at 900 ft. All rats trained at altitude showed increased phosphorylase levels in skeletal muscle.

622. HALE, Patricia Ann. Construction of a badminton long serve test for beginning players (singles). M.S. in Physical Education, 1970. 99 p. (M. R. Sloan)

The study included problems in determining a method of reliably measuring the height of a long serve, determining a type of landing target that reliably measures the distance and accuracy of a long serve, developing a scoring procedure for the test, and determining the reliability of the test. Ss were 51 freshman college woman, who were beginning players. Results indicated that the proposed test is a reliable and valid measure of an individual's ability to perform the badminton long serve. The landing target is large enough and discriminating enough to score all, or nearly all the trials, and the trials do not mass in any one scoring area. The height standards are adequate for discrimination between trials.

623. KELLY, Colin C. Socialization into sport among male adolescents from Canada, England, and the United States. M.S. in Physical Education, 1970. 183 p. (G. S. Kenyon)

It was hypothesized that socialization into sport involvement is a function of social situations, the involvement of significant others, and the country of residence; and that factors associated with socialization differ among sport types. Data were acquired from approximately 2,700 grade 10 and 12 (or equivalent) school children in Canada, England, and the U.S. The independent variables included: country of residence, educational attainment, social class background, family size, religious preference, and sport club affiliation. Dependent variables were: degree of involvement in 3 dimensions of sport activity, father-son agreement as sport consumers (secondary involvement), respondent-peer agreement on degree of primary involvement, frequency of attendance at summer and winter sport events, extent of sport club affiliation, and reported favorite sport. Socialization of male adolescents into sport involvement is a function of social situations, age, social class background, family size, and affiliation with sport agencies. It is also a function of significant others, more particularly that of father. Factors associated with socialization into team vs. individual sport roles differ, particularly those reflecting social class and family size. The outcome of socialization differs in Canada, England, and the U.S., more particularly in the type of sport involvement and frequency of attendance during winter.

624. KIERNAT, Jean C. Homemaker rehabilitation: An interdisciplinary course. M.S. in Curriculum and Instruction (Health Education), 1970. 72 p. (W. H. Southworth)

Part I defines what is meant by "disabled homemakers," reviews federal legislation relative to disabled homemakers, and describes Wisconsin's organization, programs, and personnel for homemaker rehabilitation. Part II summarizes the content, objectives, laboratory experiences, and references for each of 8 units in a course on homemaker rehabilitation foi professional personnel. The 8 units of the course are: physical disabilities, psychological aspects of disability, principles of management, nutrition, clothing, child care, housing and design, and agencies and programs.

625. KNIPPING, Paul A. Clair E. Turner and the growth of health education. Ph.D. in Curriculum and Instruction (Health Education), 1970. 237 p. (W. H. Southworth)

This study presents certain events in public health and HE over the half-century of Dr. Turner's involvement; and an examination of significant experiences, procedures, and viewpoints originating with Dr. Turner as they relate to ongoing and future developments in HE. Five chapters and an epilogue comprise the dissertation: formative years, through the master's degree at Harvard, overview from the master's degree through retirement (a silhouette of his professional life), contributions to public health practice, contributions to public health education, and contributions to school health education.

626. LASCARI, Arno. The felge handstand – A comparative kinetic analysis of a gymnastics skill. Ph.D. in Physical Education, 1970. 109 p. (E. M. Roberts)

The purpose of the study was to analyze the factors in the felge handstand (peach hand), which made it possible to execute a straight arm regrasp with the early drop style but not with the late drop style. The investigator was the S who performed both styles. Motion pictures were taken of the marked S. Centers of mass were plotted, and by graphical differentiation, the horizontal and vertical velocities and accelerations were derived. The resultant forces were determined by force formulae. The faster hip flexion-extension and the concomitant lowering, rising, and lowering of the lower limbs' center of mass was a primary reason for the greater vertical force, and the resulting straight arm regrasp developed by the early drop.

627. LUNEKE, Sheryl M. An investigation of the ability of the student to generalize selected concepts learned through object projection instruction. M.S. in Physical Education, 1970. 93 p. (A. E. Jewett)

A teaching strategy designed to facilitate concept formation was utilized in a PE classroom setting. Ss (N = 23) attended 11 sessions, during 8 of which experimental and control lessons were taught. Experimental lessons emphasized concept learning and generalization of 3 concepts related to object projection activities: a concept of a human movement pattern for object projection, a concept of imparting force to a projected object, and a concept of controlling direction of a projected object. Control lessons emphasized specific facts related to the softball throw. The effectiveness of the strategy was assessed by S's ability to generalize the 3 selected concepts, and this ability was defined as the performance level achieved in an activity different from the activity mastered. In the eighth lesson, a movement problem was presented to the Ss, and in the following session Ss were asked to perform the same movement. Three measures were taken to determine the extent to which S could generalize the selected concepts related to this movement. These tests were: a subjective rating of form by 3 trained judges; accuracy as measured by the point of contact of the ball on a target; and the velocity of the ball as measured by the velocimeter. ANOVA indicated no significant difference between the groups.

628. MARSHALL, William A. A longitudinal study of the injury potential to the lateral collateral ligaments in college football players. Ph.D. in Physical Education, 1970. 149 p. (A. J. Ryan)

Members (N = 25) of the freshman football squad and 26 of their classmates who were not engaged in intercollegiate sports, made up the 2 groups who were studied over a period of 2 years. Each group was tested before and after the fall football season, and before and after spring practice. Height, weight, flexion and extension strength at the knee joint, and ability to abduct and adduct the leg at the knee in 180° and 160° of extension were measured. Ten of the 25 football squad members suffered knee injuries during the 2-year period, but none of the nonathletes injured their knees. Neither excessive laxity of the lateral knee ligaments, gross strength deficiencies in the thigh muscles, or significant bilateral differences in thigh muscle strength could be correlated with the occurrence of knee injuries in this study.

629. PELLEGRINO, Robert E. Effects of participation in an adapted physical education program. M.S. in Physical Education, 1970. 74 p. (K. G. Stoedefalke)

The effect of participation in an adapted PE program was evaluated in order to determine the relationship between attitude toward PE and level of physical activity participation. College male students (N = 46) were divided into a control and 2 experimental groups. Data were obtained through the administration of the Wear Inventory, a formal interview, and informal discussions. Hypotheses concerning attitude change were developed based on Festinger's "dissonance" theory. Attitude toward PE was not affected by participation in an adapted PE program. Participation in the adapted program was an enjoyable experience and appeared to meet the needs of the participants.

630. RICHARDS, William T. An analysis of university problems and needs in the professional preparation of traffic and safety specialists. Ph.D. in Curriculum and Instruction (Safety Education), 1970. 312 p. (C. F. Damron)

The purpose was to investigate the role of selected Wisconsin universities which prepare traffic and safety specialists, and to develop standards and guidelines for program improvement. Research techniques used to gather data were structured personal interviews with administrators, professors, and placement officials at selected universities; local public school questionnaires administered to driver education teachers, school safety coordinators, and school district administrators; and on-site observations made at each selected university. Standards for university traffic and safety education programs were developed through a national jury of experts. Through application of the standards, a set of conclusions and recommendations for improvement were derived.

631. ROETHLISBERGER, Fred A. Socialization of the elite gymnast. M.S. in Physical Education, 1970. 154 p. (G. S. Kenyon)

The purpose was to: identify the personal attributes, situational factors and significant others that accounted for socialization into the role of the elite gymnast; and determine whether Olympic team selection was a function of socialization. The sample included 16 "all around" gymnasts who had qualified for the final Olympic trials. A questionnaire was administered which included: personal characteristics of the respondent, characteristics of the socializing situations in which the respondent participated, and the manner and degree in which significant others served as role models and contributed to one socialization process. Elite gymnasts considered themselves more independent and autonomous, but described themselves similarly on sociability, social dependency, and directiveness factors. Elite gymnasts had a low degree of primary religious involvement and tended to have very high educational and occupational ambitions. General involvement in a number of sports precedes specialization and concentration on 1 sport.

632. SERDAHELY, William J. A model for implementing a sequential program of family life and sex education in the public secondary schools. M.S. in Curriculum and Instruction (Health Education), 1970. 46 p. (W. H. Southworth)

This study contains a definition of family life and sex education; a rationale for including family life and sex education in the curriculum; a description of sequential planning; some objectives and content for family life and sex education; and suggestions for implementing a sequential program of family life and sex education in SHSs.

633. SMITH, Ronald A. From normal school to state university: A history of the Wisconsin State University Conference. Ph.D. in Physical Education, 1969. 372 p. (G. S. Kenyon)

The development of intercollegiate athletics in the Wisconsin State University Conference began shortly after the Civil War when Wisconsin opened its first normal school, a teacher training institution. Each of the 10 institutions, which were founded in the half-century following the Civil War, organized athletic teams shortly after opening. Like colleges throughout America, the normal schools, basically 2-year institutions, at first had student control over athletics. Financial and other problems led the presidents and faculties to exert greater control. By 1913, after directors of physical training for men had been established in each of the normal schools, a league was formed under the legislative and administrative control of a committee of faculty representatives, one from each of the member institutions. External forces provided the general direction that athletics would take; the internal forces modified outside influences and provided the unique features of the Conference. The narrative provides a study of the interplay of local forces, which were emphasized, and outside influences.

634. STEBBINS, Clay. Achievement in sport as a function of personality and social situation. M.S. in Physical Education, 1969. 174 p. (G. S. Kenyon)

Using a multivariate approach, the track and football athletes of a parochial and public SHS were examined. Scores on 16 personality variables, 13 sociological variables, age, height, weight, and intelligence were obtained using Cattell's 16PF Inventory and a questionnaire created by the researcher. Ss (N = 239) were divided into 4 achievement groups: outstanding athletes, varsity athletes, drop-out athletes, and nonathletes. Athletes were found to be more sociable, group dependent, of a higher social class background, and more frequent participators in sport within the family. Nonathletes were smaller in physical size, from a lower social class, and from families least involved in sports.

635. THODEN, James S. Ventilatory work during steady state response to exercise. Ph.D. in Physical Education, 1970. 99 p. (B. Balke)

Measurements of ventilatory work were made during sea-level ambient, sea-level hypoxia, and altitude (3100 m) ambient breathing. Sea-level hypoxia did not show significant changes in ventilatory work for a given ventilation. The ventilatory work for a given oxygen consumption increased during exercise at altitude. Although the elastic work per min. was increased in accordance with the higher frequency and tidal volume for a given exercise, there was no change in elastic resistance for a given tidal volume between any set of conditions. The ventilatory work for a given ventilation was identical for all conditions up to 65 liters/min., but increased beyond this point and led to the conclusion that the effect of density at altitude went beyond a simple reduction in air turbulence. Inspiratory and active expiratory flow-resistive work were increased sufficiently to account for the rise in total ventilatory work. The identification of higher esophageal pressures for a given tidal volume at altitude showed that at least part of the increase in work at altitude was real. Air compressibility was discussed as a possible factor in the explanation for higher levels of ventilatory work at altitude.

636. WEAVER, Wilhelmina. Dance as a cultural trait of some cultural groups of the Inca Empire at the time of the Spanish conquest. Ph.D. in Physical Education, 1970. 354 p. (M. Fee)

This study was undertaken to ascertain the influences of other cultural traits on the form of dances as performed by specific cultural groups. It was necessary to subject the raw data on dance, provided by Spanish and South American chroniclers, and a knowledge of human movement, to analysis according to a scheme of selected choreographic elements. By comparing identified choreographic elements with historical developmental influences and environmental determinants, it became possible to hypothesize the interrelationships and interactions of dance with other cultural traits. It was found that the dances of the cultural groups studied are more a reflection of institutions and values than of physical surroundings.

637. ZIMMERMAN, M. Nadine. The influence of stereoscopic depth perception training and level of stereopsis upon accuracy in anticipating the landing point of moving objects in three-dimensional space. Ph.D. in Physical Education, 1970. 165 p. (M. R. Sloan)

The Keystone Telebinocular Visual Skills Tests and the D. C. Aviators Stereopsis Test were used to determine two levels of stereopsis. A high and low stereopsis group (N = 56) of females was randomly assigned to either a control group receiving no training, or to a stereoscopic depth perception training program for a period of 6 wk. Conclusions were that accuracy of judgments was not significantly improved by training; level of stereopsis did not significantly affect the accuracy of judgments; accuracy of judgments regarding the anticipated landing point of objects moving at different vertical angles of projection, directions of projection and velocities of projection were not significantly influenced by training; and the verticle angle of projection and the direction of projection did influence the accuracy of judgments. The degree of inaccuracy was dependent upon the particular combination of vertical angle of projection, direction of projection, and velocity of projection.

## **Wisconsin State University, La Crosse, Wisconsin** (R. W. Batchelder)

638. CAPPS, Yvette. A comparison of two gymnastic judging procedures: Novice floor exercise. M.S. in Physical Education, 1970. 67 p. (M. I. McLellan)

This study intended to compare the value of the Specialist and FIG system of judging in terms of accuracy and reliability; reliability to the standard score provided by a national DGWS judge; and the amount of time used in computation of a Specialist and FIG score by novice and experienced judges. The t test of significance was computed to measure the time taken to arrive at the final score for each judge. Kendall's Coefficient of Concordance was employed to measure the degree of relationship among the judges' ratings. To determine differences between experimental and control groups and the standard score, the Mann-Whitney U test for independent groups was used. The researcher concluded that the Specialist system of judging gymnastics was significantly different from the FIG system of judging gymnastics. A scoring system such as the one developed for this study would have greatest value in assisting inexperienced judges.

639. EVANS, Jane R. A proposal for a motor program for children with learning disabilities. M.S. in Physical Education, 1970. 127 p. (W. D. Van Atta)

A pilot program in motor learning for children with learning problems was proposed which could be used in the province of Manitoba, Canada. The program was based on the most appropriate aspects of motor programs advocated by Kephart, Cratty, and Cleary. Adaptations of activities suggested for PE classes in elementary schools in Manitoba were made. Ss participated in this program 1 hr./wk. for 10 wk. Particular emphasis was placed on remediation of body image, balance, agility, eye-hand coordination, and eye movement control. As a result of the t test applied to the motor test scores, it was found that improvement was significant in body perception, gross agility, locomotor agility, and ball throwing. No meaningful correlation was found between motor test and reading test scores. It was evident through observation that no appreciable improvement could take place in such a short time. It was also found that instructors for such a program should be thoroughly prepared in the areas of ele. PE and learning disabilities.

640. MCFARLANE, Doris J. Comparison of two methods of teaching the forehand tennis stroke to nine- and ten-year-olds. M.S. in Physical Education, 1970. 46 p. (D. M. Wille)

This research was designed to determine if 1 method of teaching the forehand stroke to beginning tennis players 9 and 10 years of age was better than another method. One class was taught using a standard tennis racket while the other class used a paddle. All 17 Ss were beginning players, never having taken any previous lessons. Seven sessions were taught; the first and last sessions were used for testing. Both groups were taught identical material; the only difference in instruction was the equipment used. The control group progressed from the hand phase to the racket, while the experimental group progressed from the hand phase to the paddle and then to the racket. Both groups were tested using Hewitt's Revision of the Dyer Backboard Test. No significant difference was found between the 2 methods.

641. THOMPSON, Linda J. Emma Lou Wilder, physical educator. M.S. in Physical Education, 1970. 77 p. (J. L. Foss)

This study was concerned with the life and contributions of Emma Lou Wilder to the field of PE at Wisconsin State University-La Crosse, to the La Crosse Community, and to the State of Wisconsin. Background experience as a grade school teacher and playground worker, and her education at the Posse School of Gymnastics at Boston and the University of Pittsburgh prepared Miss Wilder for her position as a teacher of PE at La Crosse. La Crosse was the only teacher's college in the state designated for training PE teachers between the years of 1912-1958. Emma Lou Wilder was instrumental in developing the PE curriculum and worked for the inclusion of the recreation major, health minor, and master's degree program. She served the women PE students as placement director and advisor from the time of her arrival until her retirement. Emma Lou Wilder's dedication was expressed in her exemplary life, interest in her students, contributions and leadership in professional organizations, and her participation in campus and community affairs. Miss Wilder retired in 1956, after spending 35 years of her life as a physical educator.

# PERIODICALS REVIEWED

Acta Chirurgica Scandinavica
*Acta Medica Scandinavica
*Acta Morphologica Neerlando-Scandinavica
*Acta Orthopaedica Scandinavica
*Acta Paediatrica Scandinavica
*Acta Physiologica Polonica
*Acta Physiologica Scandinavica
*Aerospace Medical Research Laboratory Report
*Aerospace Medicine
American Corrective Therapy Journal
American Family Physician/GP
American Heart Journal
American Journal of Anatomy
*American Journal of Cardiology
*American Journal of Clinical Nutrition
*American Journal of Epidemiology
*American Journal of Human Genetics
American Journal of Medicine
*American Journal of Nursing
American Journal of Orthopsychiatry
*American Journal of Physical Anthropology
*American Journal of Physical Medicine
*American Journal of Physiology
*American Journal of Psychiatry
*American Journal of Psychology
*American Journal of Public Health
*American Journal of the Medical Sciences
*American Review of Respiratory Diseases
American Sociological Review
*Anatomical Record
Annals of Applied Biology
*Annals of Human Genetics
*Annals of Internal Medicine
*Annals of Physical Medicine
*Annals of Surgery
*Archives of Environmental Health
*Archives of Internal Medicine
*Archives of Physical Medicine and Rehabilitation
Archives of Surgery
*Australian Journal of Experimental Biology and Medical Science
*Australian Journal of Sports Medicine
*British Heart Journal
British Journal of Industrial Medicine
*British Journal of Nutrition
British Journal of Preventive and Social Medicine
*British Journal of Psychiatry (Journal of Mental Science)
*British Journal of Psychology
British Medical Bulletin
*British Medical Journal
*Bulletin of the Los Angeles Neurological Society
*(California) Assembly Interim Subcommittee on Drug Abuse and Alcoholism
California Journal of Educational Research
*California Medicine
*Canadian Journal of Physiology and Pharmacology
*Canadian Journal of Psychology
*Canadian Journal of Public Health
Cancer Research
Child Development
*Circulation
*CISM Report
*Clinical Orthopaedics
*Clinical Pediatrics
*Clinical Science
*Communications from the Danish National Association for Infantile Paralysis
*Community Mental Health Journal
*Confina Psychiatrica
Danish Medical Bulletin

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*Periodicals marked with an asterisk have reports listed in Part II – Bibliography of this issue of Completed Research.

*Defence Research Establishment Report
*Dermatology Digest
*Diabetes
*Diseases of the Chest
Educational and Psychological Measurements
*Electroencephalography and Clinical Neurophysiology
*Environmental Research
*Ergonomics
*Excerpta Medica
Experimental Cell Research
*FDA Papers
*Federation Proceedings
*Forvardsmedicin
Genetic Psychology Monographs
*Geriatrics
Growth
*Health Education Journal
*Human Biology
*Human Factors
*Indian Journal of Medical Research
*International Journal of Health Education
International Journal of Social Psychiatry
*International Journal of the Addictions
*International Review of Sport Sociology
*International Zeitschrift fur Angewandte Physiologie
*Japanese Journal of Physiology
Johns Hopkins Medical Journal
*Journal of Abnormal Psychology
*Journal of Anatomy
*Journal of Applied Psychology
*Journal of Applied Physiology
*Journal of Biomechanics
*Journal of Bone and Joint Surgery
*Journal of Chronic Diseases
*Journal of Clinical Investigation
*Journal of Clinical Psychology
*Journal of Comparative and Physiological Psychology
Journal of Educational Psychology
*Journal of Educational Research
Journal of Environmental Health and Safety
Journal of Experimental Biology
*Journal of Experimental Education
Journal of Experimental Medicine
Journal of Experimental Physiology and Cognate Medical Science
*Journal of Experimental Psychology
Journal of General Psychology
*Journal of Genetic Psychology
Journal of Gerontology
*Journal of Health and Social Behavior
Journal of Heredity
Journal of Home Economics
Journal of Laboratory and Clinical Medicine
*Journal of Leisure Research
*Journal of Motor Behavior
Journal of Nervous and Mental Disease
*Journal of Neurophysiology
Journal of Nutrition
*Journal of Occupational Medicine
*Journal of Pediatrics
Journal of Personality
*Journal of Physical Education
*Journal of Physiology
*Journal of Psychology
*Journal of School Health
*Journal of Social Psychology
*Journal of Sports Medicine and Physical Fitness
Journal of Teacher Education
*Journal of the American College Health Association
*Journal of the American Dental Association
*Journal of the American Dietetic Association
*Journal of the American Medical Association
*Journal of the Israel Medical Association
*Journal of the Maine Medical Association
Journal of Tropical Medicine
Kolner Zeitschrift fur Soziologie und Sozialpsychologie
*Lancet
*Maryland State Medical Journal
Mental Hygiene
*Military Medicine
*Mimeographed Report, Harding College, Searcy, Arkansas
National Conference on Social Welfare

Nation's Schools
*Nature
*Naval Air Development Center Report
*New England Journal of Medicine
*New Scientist
*New York State Journal of Medicine
*Nursing Outlook
*Nursing Research
Nutrition Abstracts and Reviews
*Nutrition Reviews
*Nutrition Today
*Office of Aviation Medicine Report
Parks and Recreation
*Pediatrics
*Perceptual and Motor Skills
Phi Delta Kappan
Physical Educator
*Physical Therapy
Physiological Review
*Postgraduate Medicine
Practitioner
*Proceedings of the Annual Meeting of the National College Physical Education Association for Men
Proceedings of the Nutrition Society
*Proceedings of the Royal Society of London
*Proceedings of the Royal Society of Medicine
Proceedings of the Society for Experimental Biology and Medicine
Psychoanalytic Review
*Psychological Bulletin
*Psychological Reviews
*Psychosomatic Medicine
*Psychotherapy
*Public Health Reports
Quarterly Journal of Experimental Physiology and Cognate Medical Sciences
*Quarterly Journal of Experimental Psychology
*Quarterly Journal of Studies on Alcohol
Quarterly Review of Biology
Rehabilitation Record
Research Bulletin of the NEA
*Research Quarterly, AAHPER
Revue Canadienne de Biologie
*Rheumatology and Physical Medicine
*Royal Society of Health Journal
*Scandinavian Journal of Clinical and Laboratory Investigation
*School Health Review
*School of Aviation Medicine Report
School Review
*School Safety
*Science
*Sociological Abstracts
Sociological Review
*Sociology and Social Research
Sociometry
South African Journal of Medical Science
*South African Medical Journal
Southern Medical Journal
*Strength and Health
Surgery
Swimming Pool Age
*Swimming World
Trans-action
*Transactions on Bio-Medical Engineering
*United States Air Force Aerospace Medicine Report
*United States Army Element Defense Research Office for Latin America Report
*United States Naval Medical Field Research Laboratory Report

# INSTITUTIONS REPORTING

Appalachian State University, Boone, North Carolina
Arkansas, University of, Fayetteville, Arkansas
Ball State University, Muncie, Indiana
Brigham Young University, Provo, Utah
Brooklyn College, Brooklyn, New York
California, University of, Los Angeles, California
California at Berkeley, University of, Berkeley, California
California at Santa Barbara, University of, Santa Barbara, California
California State College at Long Beach, Long Beach, California
Central Missouri State College, Warrensburg, Missouri
Chadron State College, Chadron, Nebraska
Chico State College, Chico, California
Columbia Teachers College, New York, New York
Eastern Illinois University, Charleston, Illinois
Florida, University of, Gainesville, Florida
Florida State University, Tallahassee, Florida
Georgia, University of, Athens, Georgia
Illinois State University, Normal, Illinois
Indiana University, Bloomington, Indiana
Iowa, University of, Iowa City, Iowa
Kansas, University of, Lawrence, Kansas
Lamar State College of Technology, Beaumont, Texas
Louisiana State University, Baton Rouge, Louisiana
Mankato State College, Mankato, Minnesota
Massachusetts, University of, Amherst, Massachusetts
Michigan State University, East Lansing, Michigan
Minnesota, University of, Minneapolis, Minnesota
Montana, University of, Missoula, Montana
New York University, New York, New York
North Carolina Central University, Durham, North Carolina
North Dakota, University of, Grand Forks, North Dakota
Northern Colorado, University of, Greeley, Colorado
North Texas State University, Denton, Texas
Ohio State University, Columbus, Ohio
Oklahoma State University, Stillwater, Oklahoma
Oregon, University of, Eugene, Oregon
Pennsylvania State University, University Park, Pennsylvania
Pittsburgh, University of, Pittsburgh, Pennsylvania
Purdue University, Lafayette, Indiana
Rhode Island, University of, Kingston, Rhode Island
Sacramento State College, Sacramento, California
Slippery Rock State College, Slippery Rock, Pennsylvania
Smith College, Northampton, Massachusetts
South Dakota State University, Brookings, South Dakota
Southeast Missouri State College, Cape Girardeau, Missouri
Southern California, University of, Los Angeles, California
Southern Illinois University, Carbondale, Illinois
Springfield College, Springfield, Massachusetts
Stanford University, Stanford, California

Temple University, Philadelphia, Pennsylvania
Tennessee, University of, Knoxville, Tennessee
Texas at Austin, University of, Austin, Texas
Texas A & M University, College Station, Texas
Texas Woman's University, Denton, Texas
Washington, University of, Seattle, Washington
Western Illinois University, Macomb, Illinois
Western Kentucky University, Bowling Green, Kentucky
Wisconsin, University of, Madison, Wisconsin
Wisconsin State University – La Crosse, La Crosse, Wisconsin